

**Iowa E-Government Citizen Survey:
Anticipating Demand and Understanding Financing Strategies**

Final Report

Prepared by

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This study was requested by the Information Technology Enterprise (ITE) of the Iowa Department of Administrative Services. ITE recognizes that it is important to have e-government market information on citizens and businesses when setting information technology priorities for the State of Iowa. ITE, Dr. Yu-Che Chen, and Dr. Kurt Thurmaier from the Public Policy and Administration Program at Iowa State University initiated the e-government service demand study and sought funding from the IOWAccess Advisory Council. The council approved the project and also formed a subcommittee to guide the study.

The project team would like to acknowledge John Gillispie, Chief Information Officer at ITE, for his inspiration and focus on creating value and services via information technology for Iowans. The IOWAccess Advisory Council's financial support is much appreciated. The council also provided guidance on the study. A subcommittee council consisting of David Redlawsk, Mary Maloney, and Mariam Ubben contributed invaluable input on the sampling and design of the survey.

The Center for Survey Statistics and Methodology (CSSM) served as the major project partner during the design and implementation of the survey. The team, led by Janice Larson, provided decades of combined experience in telephone surveys and in-depth knowledge of Iowa businesses and citizens. The center's Computer-aided Telephone Interview (CATI) system is state-of-the-art. The rigorous implementation of the quality assurance protocol ensured the accuracy and reliability of the survey responses.

Graduate students Susan Olson of the Public Administration Program and Bronwyn Beatty-Hansen of the Political Science program have played critical roles in the project. They worked closely with Dr. Chen and Dr. Thurmaier, providing excellent research assistance in the design of the survey, as well as in the analysis and presentation of the findings.

Executive Summary

This study is funded by the IOWAccess Advisory Council in collaboration with the Information Technology Enterprise (ITE) of the Iowa Department of Administrative Services. The council formed a subcommittee to guide the development and implementation of electronic government surveys. Dr. Yu-Che Chen and Dr. Kurt Thurmaier of the Public Policy and Administration Program (PPAP, Department of Political Science, Iowa State University) are the lead researchers for the study. The Center for Survey Statistics and Methodology (CSSM) assisted with survey design and implementation. It also provided the Computer-Aided Telephone Interview (CATI) system.

This report is the second installment of a three-part series aimed at gauging the demand for Iowa electronic government services. This report series also investigates various aspects of financing online services by examining financing schemes and payment methods. The report focuses on Iowa citizens as the customers of electronic government services at the state level. The main sections of this report focus on Iowans in the Internet age, conducting electronic transactions with the state government, and financing e-government services and payment methods.

The project team has reached the target of 400 surveys initially requested by the council. This weighted sample of 404 Iowa adults (18 years and older) is representative of state adult population in key demographic characteristics (gender, age, and ethnicity).¹ The e-government survey subcommittee provided invaluable input on the sampling and survey design. The PPAP team and the survey center drew on their expertise and contributed quality and value to the design, implementation, and analysis of the survey.

The results indicate that there is a significant opportunity for Iowa e-government services to reach out to citizens. Over 79% of Iowa adults are currently online, close to half of them using broadband connections. Information searches on state government Web sites are popular among Iowa adults. Over half of Iowa's online adult population is looking for recreation as well as health and safety information. Nonetheless, two-way online transactions are rather behind with the exception of e-filing income taxes. Among those online, only an average of 15% currently conduct online transactions with the state government. Since three-quarters of the remaining 85% are interested in online transactions with the state, there is a significant opportunity for the state government to extend its interactive services to a large portion of Iowa population. A host of services enjoys strong demand from a majority of Iowans, including services as e-filing, registration for state government grants, loans, and housing assistance.

To enhance responsiveness to citizens' needs, the state government can focus its efforts on helping citizens navigate government websites. To make finding information and services easier. State government also needs to address privacy and security concerns in providing e-government information and services. Moreover, the state government can increase value to citizens by ensuring that information is updated frequently and by making services available 24/7 to serve busy individuals and families. Certain functionalities can be added, such as e-mail confirmations, electronic receipts, and e-mail reminders.

The majority of Iowa citizens support user fees as the primary way of financing e-government information and services. An even higher level of support for user fees is evident

¹ For results based on the sample, the margin of sampling errors is +/- 5 percent at 95 percent confidence level. For more details on the weighting scheme, see Appendix A on methodology. The survey response rate is 32 percent.

when a service is said to be provided to a particular user group. The survey results indicate that Iowa citizens are willing to pay an average of \$3 per transaction for the convenience of online services after considering actual costs incurred in transactions with the government. Iowa citizens also place a premium on e-filing taxes with the state, application for state schools, and paying bills or fees online.

The state government will probably need to examine specific services in light of various public policy goals as it determines appropriate financing schemes. User fees are the preferred option by the majority of citizens. To encourage wide citizen participation, state government may wish to keep the fees for conducting online transactions with state government between \$2 and \$3. Priority should be given to the categories of e-government services that have the highest demand. Moreover, demographics should be taken into account as state government considers which financing scheme it should use.

Introduction and Background

State governments around the country have been under tremendous pressure to do more with less. On the one hand, state governments have experienced budget shortfalls for the past few years. On the other hand, few state legislatures are willing to raise taxes to address state fiscal problems, at least in the near future. Moreover, citizens and businesses still expect more and better services from state governments, and such expectations probably result from the belief that there is much room for improvement in state government operation. Facing pressures from citizens and businesses, state governments need to find better ways to improve their effectiveness and efficiency.

Information technology (IT) holds the key to doing more and performing better with fewer resources. At a minimum, IT helps state governments deliver up-to-date information on their web sites. In turn, accurate information helps citizens and businesses find the right agency office for the specific services they need, and it helps them stay informed of key dates. And when compared to paper-based processes that may take days or months, IT services require only minutes or hours. This is a major improvement for citizens. More advanced electronic government services include putting entire transactions online, such as filing taxes or renewing hunters' licenses.² The savings in taxpayer dollars and time would be even more significant. Electronic government, or e-government, at its best can be an impetus for transforming government into a citizen-centric enterprise that fosters interdepartmental cooperation and collaboration to deliver to its citizens the best value for their tax dollars.

The state of Iowa, facing similar resource constraints as other state governments, is striving to leverage information technology to deliver better and more efficient services to its citizens. The creation of the Information Technology Enterprise (ITE) as an integral part of the state's Department of Administrative Services serves as a major initiative in using information technology to improve the business of government. The enterprise approach takes advantage of economies of scale in areas such as data centers, information security, and a state-wide e-mail system. The other state entity that takes an enterprise view of information technology is the IOWAccess Advisory Council. Its mandate is to promote electronic government by recommending funding for initial investments in information technology projects.

In pursuing e-government, one of the biggest challenges is to remain citizen-centric.³ Although governments at all levels recognize the importance of responsiveness, there is not enough effort directed at systematically understanding what citizens need from e-government. The most recent and comprehensive demand study was conducted in 1999 by the Momentum Research Group of Cunningham Communication.⁴ In light of rapid developments in e-commerce and e-government, the findings in 1999 may not be relevant for information technology decisions in 2005.

The first step in becoming citizen-centric is to understand consumer needs. Market intelligence on the current and future demand for e-government services will help guide

² For a scheme of the stages of e-government, see Karen Layne and Jungwoo Lee, (2001), Developing Fully Functional E-Government: A Four Stage Model, *Government Information Quarterly* 18(2): 122-136.

³ This argument has been advanced by the General Accounting Office (GAO) report (2001) entitled "Electronic Government: Challenges Must Be Addressed with Effective Leadership and Management." The State of Washington's Digital Government Plan has also emphasized the importance of being citizen-centric.

⁴ For details, see Momentum Research Group of Cunningham Communication's (2000) report entitled "Benchmarking the eGovernment Revolution: Year 2000 Report on Citizen and Business Demand."

government IT decisions. It will help governments deliver the most value to citizens and businesses given limited resources. For example, if citizens are keen on getting campground reservations online, government will be able to give priority to such a project. If businesses want the convenience of single sign-on (SSO) or government charge accounts, government will be able to respond to such demands and preferences.

In the assessment of e-government needs, the most important element involves studying how sensitive customers are to various costs and payment methods associated with online transactions. Payment methods impact both the adoption and financing of e-government services. For example, if a state legislature prohibits state agencies from absorbing credit card company fees into their cost structures, agencies are effectively prevented from offering credit card payment as an option. This subsequently would discourage citizens and businesses who prefer the option of a credit card payment.

ITE recognizes that it is important to have e-government market information on citizens and businesses when setting information technology priorities for the State of Iowa. ITE initiated the e-government service demand study and sought funding from the IOWAccess Advisory Council. The council approved the project and also formed a subcommittee to guide the study.

The objectives of the study are two-fold. First, the study aims to understand the current and future demand for electronic government services. Second, it examines how much customers are willing to pay for online options and which payment methods they prefer. Citizens and businesses constitute the two main customer groups for electronic government services; since the groups differ so greatly from one another, this study examines each group separately to arrive at a more accurate assessment. The results from a survey of over 400 businesses are presented in the first report (see Chen and Thurmaier 2005). A second survey, focused on citizens, is the subject of this report.

The principal investigators of this project are Dr. Yu-Che Chen and Dr. Kurt Thurmaier, both faculty members in the Public Policy and Administration Program (PPAP) at Iowa State University. PPAP was chosen because of its expertise in e-government. PPAP is partnering with Iowa State University's Center for Survey Statistics and Methodology for the use of computer-assisted telephone interview services. The center also provides valuable survey experience and knowledge of Iowa citizens and businesses.

The e-government survey subcommittee was formed by the IOWAccess Advisory Council and the subcommittee is serving as a strategic partner. The subcommittee is contributing invaluable insights on the scope and direction of the project. Subcommittee members are David Redlawsk (Professor, University of Iowa), Mary Maloney (Treasurer, Polk County), and Mariam Ubben (President, Software and Information Technology of Iowa).

The central goal of the project is to understand what Iowa citizens and businesses want in current and future electronic government services. To that end, a telephone survey is the preferred method, as opposed to a web-based survey. The telephone survey does not discriminate against those who may not be currently online but who still have opinions about future demand. The advisory council wanted a sample size of 400 firms and 400 adult individuals in Iowa.

The current report is focused on individuals. Based on U.S. Census 2000 data, there were approximately 2,926,000 people in the State of Iowa. Working with the subcommittee, the research team used random digit dialing of a white pages sample of telephone numbers to accomplish a random sample of Iowa adults (18 years and older). This research sample allows us to determine whether age, income, and other demographic characteristics affect citizens' demand

for e-government services. Moreover, a representative sample allows for generalization of findings to all Iowa adults.

The project began in September 2004 and ended in July 2005. The project began with a literature review of research on e-government, with a focus on e-commerce functions and payment options. We also reviewed state government Web sites to arrive at a list of realistic electronic government services that can be listed in the survey. Intensive survey development began in mid-January 2005. During the process, the subcommittee provided guidance on the direction as well as the content of the citizen survey. After final programming, the survey center launched the survey in March 2005 and phone interviews took place through early May. The Public Policy and Administration Program team worked on data analysis and report writing in May and June of 2005.

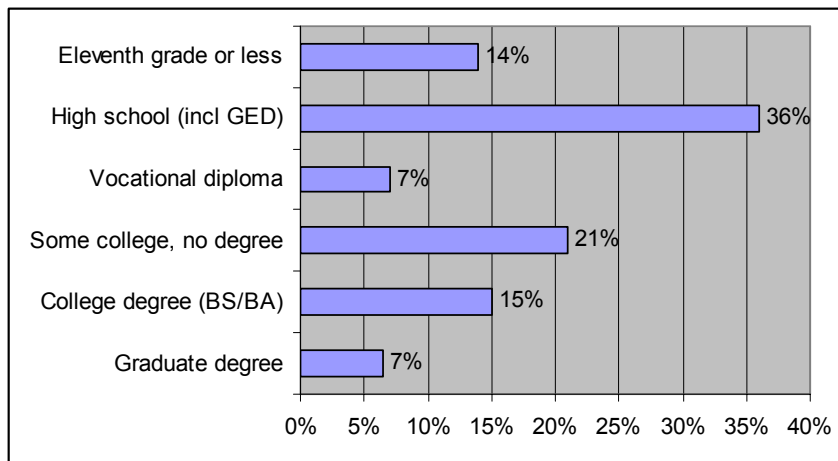
This report is organized in several sections. The following section looks at Iowans in the Internet age, examining the general makeup of Iowa. More importantly, it will examine the percentage of Iowans online and analyze what kinds of internet connections they have. The next (third) section examines the online information searches and business transactions that individual Iowans are currently conducting with the State of Iowa and wish to conduct in the future. The fourth section begins with a pricing framework and then moves to finance-related questions such as the issues of who should pay for online transactions and individuals' willingness to pay. In the same section, we also probe what preferences Iowa citizens have concerning payment methods. This report concludes with recommendations on understanding and meeting the needs of Iowa's citizens now and into the future.

Iowans in the Internet Age

Iowa Citizens: Census 2000 Data

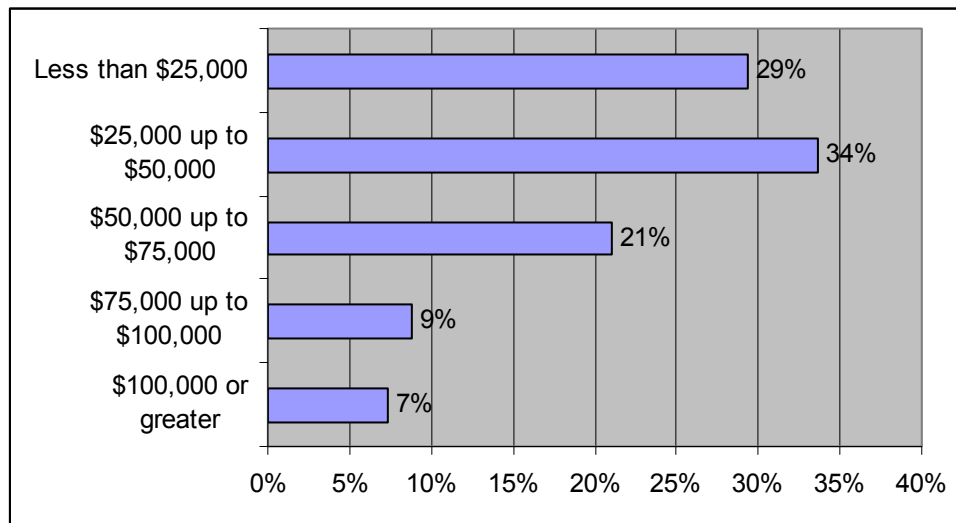
There are 2,192,686 Iowa adults (18 years and over) out of 2,923,179 people in the State of Iowa, based on the 2000 U.S. Census Bureau's report. The gender distribution is nearly equal with 51 percent of the population being female and 49 percent male. Census 2000 also reveals other demographic statistics of interest about Iowa's citizens including their income, education, and ethnicity. A high school education is the most often achieved degree with 36 percent of Iowans obtaining a high school degree (including a GED), 15 percent achieving a college degree and 7 percent achieving graduate degrees (figure 1). The median household income of Iowans is \$39,469 with 34 percent earning annual incomes of \$25,000 up to \$50,000 (figure 2).

Figure 1. Educational Profile of Iowans who are 25 years and over



Source: U.S. Census 2000

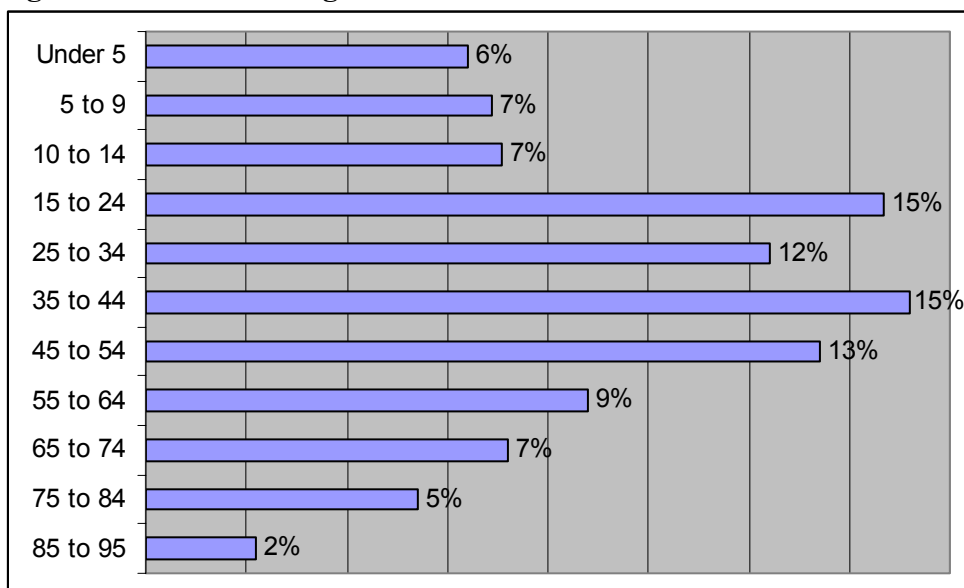
Figure 2. Household Income Profile of Iowans



Source: U.S. Census 2000

According to Census 2000, 94 percent of Iowa adults are White, 2 percent Black or African American, 2.8 percent Hispanic and, the remainder are Asian, Pacific Islanders, or others. Because we think of Iowa as an agricultural state, it is not unusual to think that a good percentage of Iowans live in rural or farming communities. Census 2000 shows that only 15 percent of Iowans live in communities of less than 2500.

Figure 3. U.S. Census Age Distribution of Iowans



Source: U.S. Census 2000

A majority of Iowans, 55 percent, are 15 to 54 years of age; 9 percent are 55 to 64 years of age, 20 percent are under 15 years of age and 14 percent are at least 65 years of age. It is important to point out that the group cohort coming up immediately behind the 65 and over age group, those between the ages of 40 and 64, will be even larger. The demographic profile of Iowans is likely to be stable in the coming years. Based on the forecast of the U.S. Census,⁵ Iowa's population growth from 2000 to 2004 will be under 1 percent. Growth is seen in those between the ages of 18 and 64. A major decrease of 7 percent is seen in the 18 years or younger group. There is a slight decrease in the age group of 64+ during 2000 and 2004 period. However, that will change once a large number of baby boomers begin reaching the age of 65 in 2010. As they look to Iowa's future and plan for the distribution of resources and services for electronic government, planners and strategists need be sensitive to the demand of Iowans who are approaching or are already enjoying retirement years.

A Weighted Representative Sample of Iowa Citizens (Adults)

Of the 404 respondents in the 2005 E-Government Citizen Survey, 62% were female and 38% were male. Among the respondents, 97 percent report their race as being White, 2 percent Hispanic, and 1 percent African American. The biggest age group is the 55-64 group, which constitutes 22% of the respondents. The second, third, and fourth groups are 45-54 (20%), 65-74 (13%), and 35-44 (12%), respectively. A high school diploma, or GED, is the most often cited level of education achieved by Iowans at 34 percent, with 11 percent reporting a vocational diploma, 19 percent reporting a college degree, and 8 percent reporting that they have a graduate level education. According to the largest group in each demographic category, Iowans most often live in communities from 2500 to 50,000 people and have household incomes of \$25,000 to

⁵ Source: U.S. Census Bureau, Population Division, (301) 457-2422, Released March 10, 2005 <http://eire.census.gov/popest/data/states.php>; Prepared By: State Library of Iowa, State Data Center Program, 800-248-4483, <http://www.iowadatacenter.org>, accessed, July 2005.

\$50,000. The respondents represent a variety of Iowa communities from rural to metropolitan areas.

Both Census 2000 and the sample agree that the level of education most often achieved by Iowans is a high school diploma (including a GED) with 36 percent and 34 percent reported respectively. The two reports also closely agreed on the number of Iowans who earned college degrees with Census 2000 reporting 15 percent while the sample reported 19 percent. However, the demographic composition of the sample is different from that of Iowa adult population in several key demographic characteristics – gender, ethnicity, and age. This is probably due to the fact that well-educated mid-age white females were more inclined to participate in the survey than males in the household. Minority groups are under-represented in the survey relative to the general population in Iowa.

To make the sample composition reflect the same composition of the Iowa adult population reported in Census 2000, we derived weights for respondents based on individual gender, age and ethnicity. The adjustment was made based on gender, age, and ethnicity because a significant difference was found between sample and population compositions. The sample size was reduced to 392 observations after the weighting procedure because 12 respondents refused to supply information on one or more weighting variables, making them ineligible for the weighted analysis. A more detailed discussion can be found in the weighting section of the methodology in Appendix A.

After the weighting adjustment, the sample composition is representative of Iowa citizens (adults) in Census 2000 in gender, age, and ethnicity. Gender is closely matched; Census 2000 reported Iowa's population to be 51 percent female and 49 percent male while the adjusted sample is 52 percent female and 48 percent male. As shown in table 1, the weighted age distribution of survey citizens is almost an exact match of the Iowa adults in Census 2000.

Table 1
A Comparison of Census 2000 Adults and Weighted Sample Age Group Composition.

Age Groups	Census 2000	Weighted Sample	
		Percent	Responses
18 to 24	14.0%	13.8%	54
25 to 34	16.6%	16.1%	63
35 to 44	20.3%	20.4%	80
45 to 54	17.9%	17.9%	70
55 to 64	11.7%	12.0%	47
65 to 74	9.6%	9.9%	38
75+	10.2%	9.9%	39

Sources: Census 2000; Iowa E-Government Citizen Survey

The ethnicity of the weighted sample is now matched with the Census 2000 population, as shown below in table 2. Census 2000 reported 95 percent of Iowan adults to be White as compared to 98 percent in the sample. Census and sample adults were similar in other ethnic categories as well. Census 2000 reported Iowa's Black or African American population as 1.8 percent while the weighted sample is 1.0 percent. The Census also reported Iowa's Asia or Pacific Islander population to be 1.2 percent which is close to the 0.9 percent in the weighted sample. Moreover, the weighted sample achieved a nice representation of Hispanic or Latino

population; 1.8 percent are classified as Latino or Hispanic, compared with 2.2 percent in the census data.

Table 2
Ethnicity Compared in Census 2000 Adult Population and Weighted Sample.

One Race	Census 2000 (18+)	Weighted Sample
White	95.0%	98.0%
Black or African American	1.8%	1.0%
Asian or Pacific Islander	1.2%	0.9%
Others	2.0%	
	100%	100%
Not Hispanic or Latino	97.8%	98.2%
Hispanic or Latino	2.2%	1.8%
	100%	100%

Sources: U.S. Census 2000; Iowa E-Government Citizen Survey

In sum, the weighted sample composition is representative of the Iowa adult population. As a result, analysis based on the weighted scheme will give us a high level of confidence to generalize from the sample to the Iowa population. The analyses that follow will utilize this representative sample to answer key research questions.

Iowa Citizens Online: Status and Challenges

Internet Penetration Rate and Experience

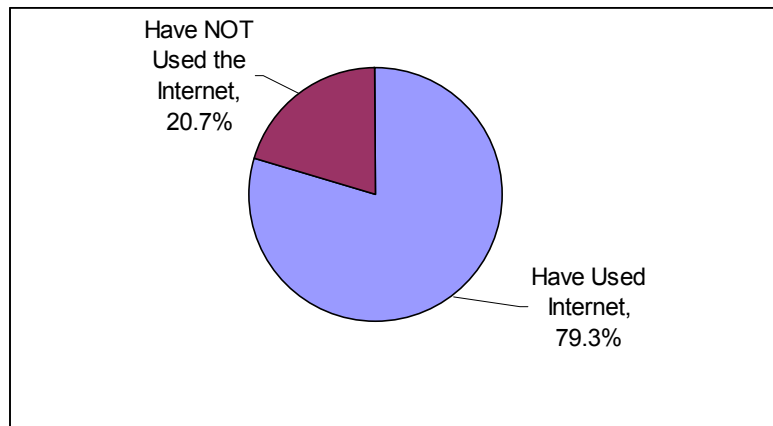
The current penetration rate of Internet use for Iowa adults is 79.3% (figure 4). This number is higher than national average of 68% in 2005 based on the Pew Internet and American Life Project that tracks Internet use in the United States.⁶ Another 6.6% of the Iowa adults who have not used the Internet expect to connect their home computer to the Internet within a year. Since the survey was completed in May 2005, we can reason that by June 2006, we can see close to 86 percent of Iowa citizens will have experience with Internet use.

A majority of Iowa Internet users have extensive experience surfing the Net. About 58 percent of them have more than 5 years of experience using the Internet. This is slightly higher than the 55 percent of American Internet users who reported having the same length of experience surfing the Net. Another 33 percent of Iowa Internet users have reported surfing the Internet for 2 to 5 years, compared to 36 percent of American Internet users. The remaining 7 percent of Iowa Internet users have experiences with the Internet for two years or less, compared to 6 percent of American Internet users.⁷ The combination of high Internet penetration rate and extensive experience with the Internet for Iowa adults presents a significant opportunity for Iowa state government to provide information and services online for its citizens.

⁶ Pew Internet & American Life Project, *February-March 2005 Tracking Survey*, www.internet.org/trends.

⁷ Fox, Susannah. *Health Information Online*. Pew Internet & American Life Project, May 17, 2005, www.pewinternet.org/pdfs/PIP_Healthtopics.

Figure 4. Internet Penetration Rate



Source: Iowa E-Government Citizen Survey

The demographic makeup of Iowa adults having ever used the Internet it is not surprising (table 3). People who belong to the young and middle age groups tend to be online more. More educated people, particularly those with college degrees, tend to have more experience with the Internet. In general, people in large towns have more experience with the Internet than others. People in a rural area have slightly more experience than those who live in a small town of less than 2,500 people. The lowest internet use is by elderly (65 years or older), with low income (less than \$25,000), living in a small town (less than 2,500), and only reporting a high school degree. Women are only slightly less active internet users than men.

Table 3
Percent of Citizens Who Have Used the Internet

Gender			
Male	81.4%	Female	77.5%
Residence		Education	
farm or in a rural area	75.9%	Eleventh grade or less	70.0%
town of less than 2500	68.9%	High school (includes GED)	61.7%
town of 2500 up to 10,000	78.6%	Vocational/tech. certificate	85.4%
town of 10,000 up to 50,000	82.9%	Some college, no Bachelor's	88.6%
city of 50,000 up to 100,000	86.1%	College 4 year degree	94.4%
city/metro of 100,000 or more	90.7%	Graduate degree	90.9%
Age		Income	
18-19 Yrs Old	100.0%	Less than \$25,000	52.1%
20-24 Yrs Old	100.0%	From \$25,000 up to \$50,000	78.2%
25-34 Yrs Old	93.7%	From \$50,000 up to \$75,000	90.5%
35-44 Yrs Old	93.8%	From \$75,000 up to \$100,000	93.2%
45-54 Yrs Old	91.7%	more than \$100,000	95.2%
55-59 Yrs Old	75.0%		
60-64 Yrs Old	66.7%		
65-74 Yrs Old	50.0%		
75-84 Yrs Old	17.2%		
85 and Up	9.1%		

Source: Iowa E-Government Citizen Survey

Access: Home Computer, Internet Connection, and Speed

Another key indicator of the citizenry online is the penetration rate of home computers with an Internet connection. Having a home computer allows Iowa citizens to perform complex personal management tasks. Moreover, it provides the basic equipment to connect to the Internet and for them to transact with government online. One series of questions probes the presence of a home computer, a connection to the Internet, and the type of connections. We also explore the relationships between demographics and access as measured by home computer presence, Internet connection and connection speed. The results are presented in Appendix B.

In general, 75 percent of Iowa adults have a computer at home. This is 15 points above the 2001 average according to the U.S. Census.⁸ For those Iowa adults who have used the Internet, 86 percent of them have a home computer. Home computer presence is similar for males and females. A person with a computer at home in Iowa tends to be of middle age with high income. This rate reaches 95 percent (7 points above the average) for the 35-44 age group. Home computer presence significantly drops to 50 percent or less for people who are 75 years or older. An interesting observation is that home computer presence among people of ages 18-19 is 100 percent. At least 93 percent of people whose household income is at least 50,000 have a computer at home. Although still significant, the percentage drops to 62 percent for those people whose household income is less than \$25,000. Education level and location (rural vs. urban) do not exhibit a clear relationship with home computer presence. Based on the survey results, people living on a farm or in a rural area are slightly more likely than people living in a small town (population of 2,500 or less) to have a computer at home. However, living in large cities does not necessarily mean a person is more likely to have a computer at home.

The presence of a home computer does not necessarily imply that the computer is connected to the Internet, although the connection rate is high (87 percent). This number is slightly lower than the national average of 90 percent of households connected to the internet.⁹ Male respondents reported a slightly higher rate of having an Internet connection (93%) to their home computer than female respondents (83%). Higher income households tend to subscribe to Internet services for their home computer more than lower income households. This pattern is similar to the one observed for home computer presence. It can be reasoned that purchasing power (high income) assists the subscription of service. Age, however, does not play an important role in determining Internet service subscription except for the oldest cohorts. One hundred percent of adults ages 18-19 have an Internet subscription for their home computer. That is predictable for the Internet savvy generation. The connection rate remains strong across age groups from 20-74 with a significant drop only after 75 or older. It could be the result of an extended family living in one household where young adults drive the need for subscribing to the Internet. Education level and location (rural vs. urban) do not seem to exhibit a clear relationship with Internet subscription. Based on the survey results, people living on a farm or in a rural area are slightly more likely than people who living in a small town (population of 2500 or less) to subscribe to Internet services. Level of education does not exhibit a clear relationship with Internet connection.

⁸ U.S. Census Bureau, Current Population Survey, table 2B: Presence of a Computer and the Internet at Home for People 18 Years and Over, by Selected Characteristics, September 2001.

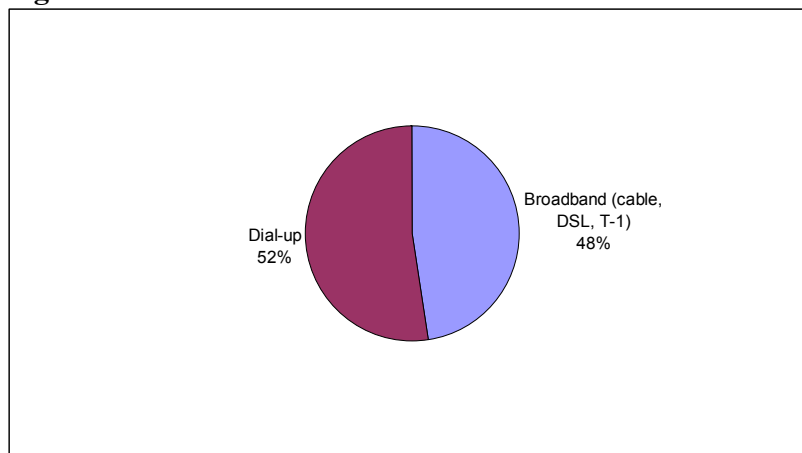
⁹ U.S. Census Bureau, Current Population Survey, table 2B: Presence of a Computer and the Internet at Home for People 18 Years and Over, by Selected Characteristics, September 2001. The percentage of computer with an Internet connection was calculated by having the total number of individuals with a home computer divided by the total number of individuals with an Internet at home.

It is important to differentiate between the kinds of online connections used by citizens. High-speed connections enable citizens to conduct transactions with government more easily. These connections are used to avoid the hassle of dialing up as well as the long waiting times incurred when conducting online transactions. The survey makes a simple distinction between two types of connections: dial-up and high-speed. High-speed Internet access includes cable, (A)DSL, and T-1 connections. Dial-up is through a modem with phone connection and dial tone.

The number of Iowa adults who have a high-speed connection is slightly less than that with a dial-up one. For those Internet users whether home or work access, 48 percent of them have high-speed connections (figure 5). This penetration rate is less than the national average of 55 percent surveyed in 2004.¹⁰ The rest (53 percent) have dial up services.

As one may expect, high speed connection is most prevalent in city/metro (100,000 or more) areas with 67 percent reported. In contrast, high speed penetration is lowest (30 percent) among those who live on a farm or in a rural area. It could be the lack of available high-speed service providers in the rural area. The age group of 25-34 shows the strongest demand for high speed (65%), and the demand remains strong for the 35-59 age bracket. Unlike home computer ownership and purchase of Internet service, education shows a clear relationship with high-speed connection. In general, a more educated person is more likely to have a high-speed connection. High-speed connection is more prevalent in well-to-do families with one exception. The lowest household income bracket (less than \$25,000) surpasses two other income groups to have a high-speed penetration rate of 52 percent.

Figure 5. Penetration Rate of Broadband Services



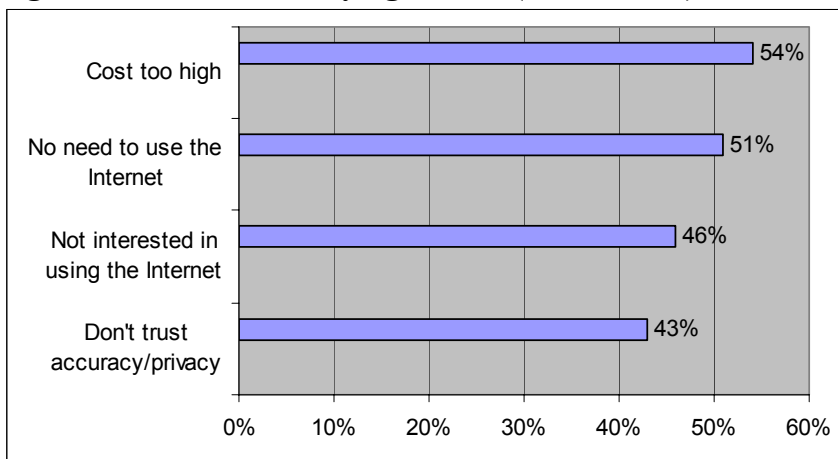
Reasons for Staying Offline

Nearly 12% of Iowa adults who have a computer at home indicated that they do not plan to connect to the Internet within one year. This statistic has policy implications for the state government, so it is important to understand why some Iowa citizens are choosing to stay offline. We specifically asked citizens who chose to stay offline why they made the decision to do so. The leading reason for citizens to stay offline was cost (54 percent) as shown in figure 6. It indicates that for those who do not plan to connect to the Internet in the near future, cost is a

¹⁰ Source: Horrigan, John B., "Broadband Penetration on the Upswing", Pew Internet & American Life Project, April 2004, page. 2. Available at: http://www.pewinternet.org/PPF/r/121/report_display.asp (Accessed July 6, 2005).

concern. No perceived needs to use the Internet and lack of interests in using the Internet are ranked as the second and third reasons respectively for citizens to stay offline with 51 and 46 percent. This indicates that half of the people with home computers lacking an internet connection do not feel the need nor do they have the interest in connecting to the Internet in the near future. This could partly be due to the fact that services and information they are looking for are unavailable or because citizens are unaware that the information and services they desire are available. Security and privacy are of some concern to citizens as they decide whether or not to connect their home computers to the Internet (43 percent).

Figure 6. Reasons for Staying Offline (Percent Yes)



Iowans' Use of State E-Government Information and Services

A majority of Iowa adults are currently online. However, it does not follow that conducting transactions electronically is their preferred way of doing business with state government. Citizens weigh the availability of electronic transactions against the convenience of various alternatives such as working with an intermediary, using the regular postal service, or making agency office visits. This section of the report begins with a profile of the types of information and transactions that Iowa citizens gather and conduct with the state government based on availability. Next, it examines the cost benefit calculation to Iowa citizens when they choose an electronic method. With this as a backdrop, the use of electronic methods is assessed for intensity of use, satisfaction, and future demand.

Types of Information Searches and Transactions with the State Government

This report takes a customer-centric approach when examining information searches and transactions that Iowa citizens conduct with the state government. Thus, table 4 organizes transactions by types of information and services used, rather than by the particular departments of the state government charged with providing those services. This classification is consistent with the customer-centric approach that information technology is able to realize for advanced e-government. We will next start with e-filing of state taxes. Then, the current use and satisfaction as well as future demand for those online information and services will be examined accordingly.

Table 4
Information Search and Transaction Activities with the State of Iowa

Category	Examples
Information Searches	
Recreational information	Campsites, state parks, state fair, cultural activities
Health and safety	Reports on health facilities, sex offender registries, road conditions, road construction, publications
Governmental	Voter registration, workforce training, jobs or assistance, public education opportunities, State of Iowa telephone directory, news releases
Types of Transactions or Services	
Apply for or renew licenses	Hunting or fishing licenses
Recreational vehicle registration & renewals	Boats, snowmobiles, airplanes,
Registrations	Public housing, medical benefits, grants, loans
Paid bills or fees	Traffic tickets or misdemeanor violations, city utilities
Applications	State jobs, public school or university admissions, scholarships, low-interest loans
Download forms	Tax, consumer complaint forms, voter registration, educational financial aid, veteran's forms

Source: Iowa E-Government Citizen Survey

About 67% of Iowa adults file taxes using professional tax preparers such as a CPA, H&R Block, or similar firms. E-filing is prevalent if we can assume that the majority of filings via professional tax preparers are done electronically. For those who prepare and file their taxes personally, this survey explored the rate of e-filing and satisfaction with the process.

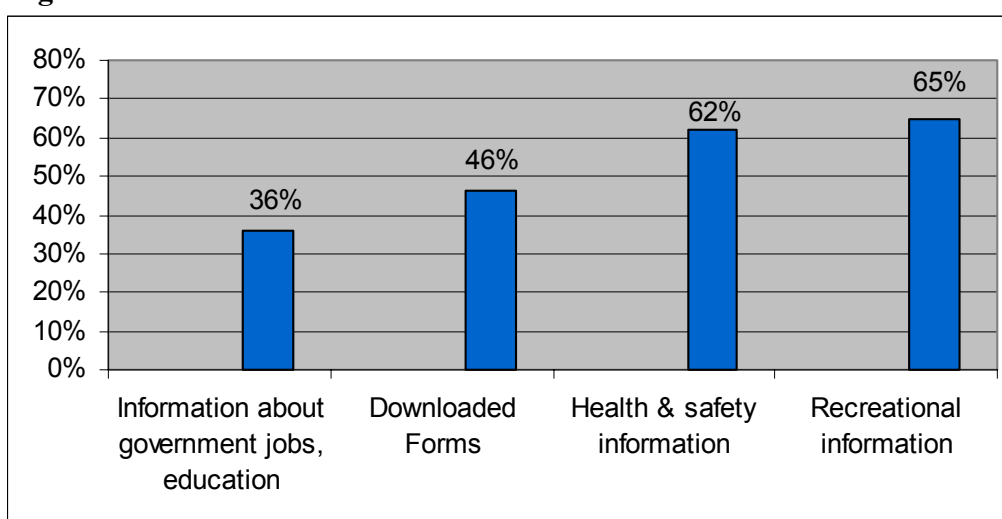
A high percentage of those who prepared their own state income taxes used the e-filing option. Up to 65 percent of them have e-filed their state income taxes. This indicates a high level of utilization of the e-filing option. An overwhelming majority of e-filers were satisfied with the online filing services. Over half of those (58 percent) who used the e-filing services indicated that they are “very satisfied” (score of 5) with the service on the scale of 1-5 (1 means “very dissatisfied” and 5 means “very satisfied”). Another 37 percent felt satisfied with the service. This takes the total percentage of people who are at least satisfied with e-filing (score of 4 or 5) up to 95 percent. What is interesting is the potential for attracting individual filers to filing online. For those who have not e-filed, three-quarters have indicated that they are going to e-file in the future. This means that nearly 90 percent of individuals who file taxes may utilize the e-filing option.

Online Information Searches and Transactions: Current Use and Satisfaction

Information Searches

Iowa citizens contact government using online searching for various kinds of information (table 4). The most popular information is recreation-related (figure 7). Of respondents looking for information online, 65 percent report searching for recreational information including information about state parks, hunting or fishing licenses, or the state fair. The second most popular kind of information is related to health and safety issues with 62 percent of respondents searching for this kind of information. Examples include online information on road conditions, access to sex offender registries, or evaluation reports on health facilities.

Figure 7. Information Searches for Iowa Adults



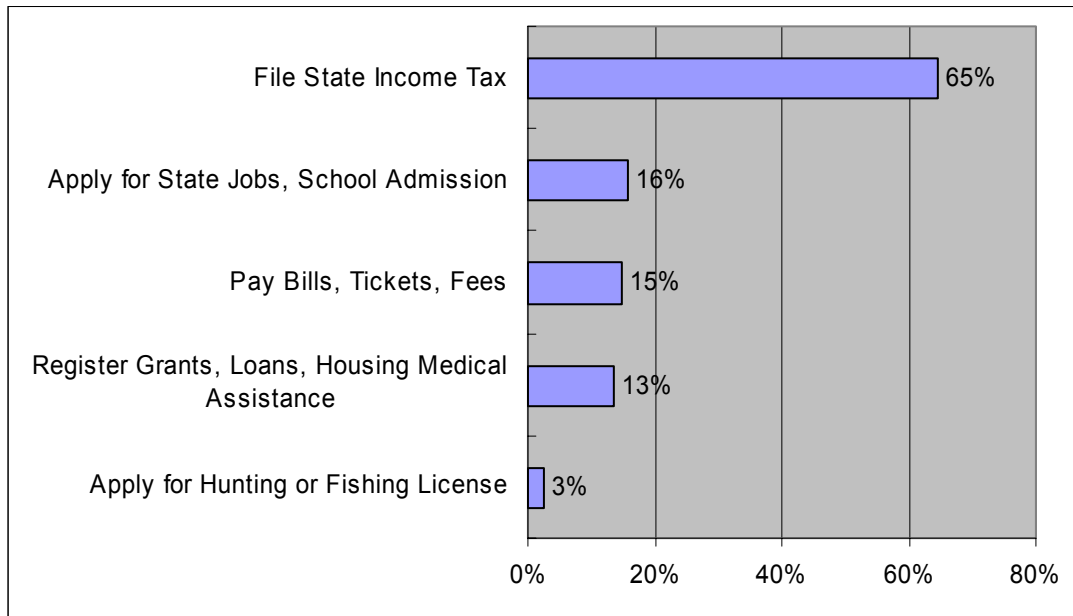
Source: Iowa E-Government Citizen Survey

Nearly half of Iowa citizens (46 percent) also look for information about downloading forms for all kinds of transactions with government. Citizens look for information about government jobs, government assistance, or public educational opportunities in Iowa as well. Thirty-six percent of respondents indicated that they have tried to find this type of information on state government Web sites.

Transaction Activities

With the exception of filing state income taxes, Iowa adults do not engage extensively with Iowa state government in electronic transactions (figure 8). Sixteen percent of the Iowa Internet users report experience with applying for state jobs or applying online for admission to public schools or universities. Slightly fewer (15 percent), report paying bills, tickets, or fees online with state offices or agencies. Thirteen percent reported some online activities with online registration for government assistance such as state grants or loans, housing assistance, or medical benefits. Applying for hunting or fishing licenses, a new online service available at the Department of Natural Resources, already attracts about three percent of Iowa Internet users.

Figure 8. Current Percent of Online Transactions with State Government

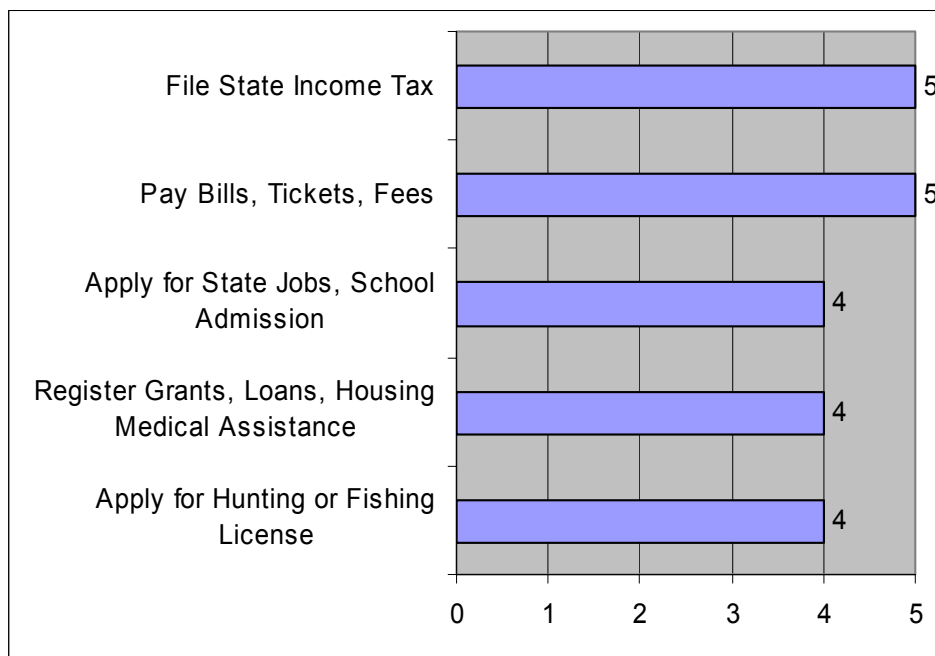


Source: Iowa E-Government Citizen Survey

In general, Iowa citizens are quite satisfied with their online experiences (figure 9). On a scale of 1-5 (1 meaning “very dissatisfied” and 5 meaning “very satisfied”), every type of transaction received a median rating of at least 4.0. Certain transactions received the highest ratings among all the types of transactions examined in this study, reaching a median score of 5. These transactions involved filing state income taxes, and paying bills, tickets, or fees online. A median score of 5 would indicate that 50% of citizens who used the services are “very satisfied” with online services for state income taxes. This is also the case for paying bills, tickets, and fees.

Three other online services receive a median score of four. This means that 50% of the service customers (citizens) are very satisfied or satisfied (median=4) with those three services. Application for state jobs and school application were well received, with a majority of the sample expressing satisfaction: that is, about thirty percent of the respondents said they were “very satisfied” with online report filing and 51 percent of them said that they were “satisfied”. Similarly, registration online for government assistance and application for fishing and hunting license were rated at a median score of 4. However, it is clear that fewer percentages of respondents rated the services favorably. For online registration for government assistance (grants, loans, housing, medical), 13 percent of service users were very satisfied with the experience. Another 40 percent felt satisfied. This takes the percentage of those users who are at least satisfied with the experience up to 53 percent. For getting fishing and hunting license online, the percentage of users who are at least satisfied is a little higher (68 percent). The difference in total percentage between this service and the online registration for government assistance lies in the higher percent of people expressing “very satisfied” for the service.

Figure 9. Median Satisfaction Scores for Online Services (1-5 Scale)¹¹



Source: Iowa E-Government Citizen Survey

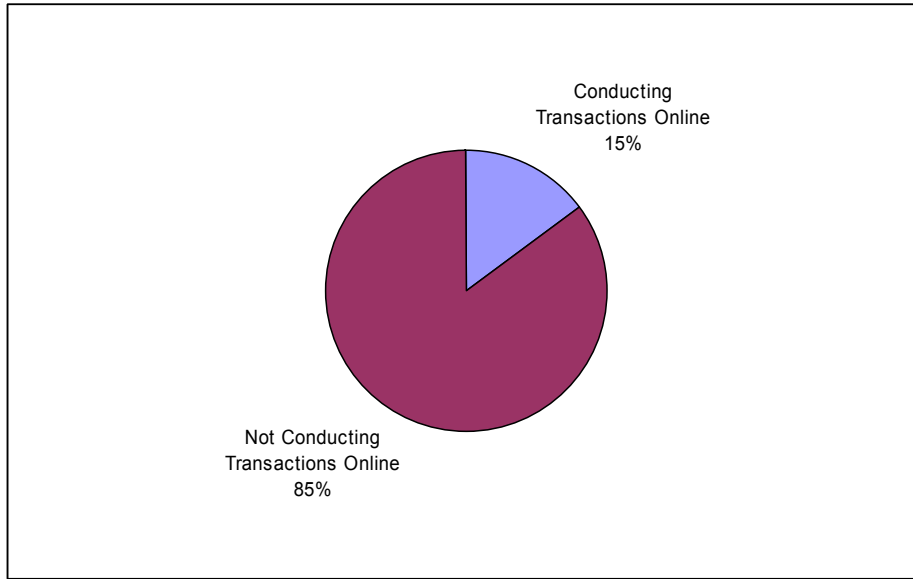
Future Demand for Online Services

Overall future demand for online services is strong across various transaction types, especially since a vast majority of Iowa Internet users indicate a desire to conduct transactions with the government online (figure 10 & figure 11). Of those who are currently conducting no transactions with the state government online, on average, over 70 percent say they would like to do so in the future. Considering that only about 15% of citizens are currently conducting online transactions, both statistics taken together mean that there is a significant opportunity for future growth. Excluding e-filing of state taxes, taking both statistics together yields approximate 60 percent of Iowa adults would demand online services such as paying bills, getting license, applying for jobs and educational opportunities.

More specifically, 76 percent of the citizens who currently have not registered for grants, loans, or other assistance online, expressed a desire to conduct these transactions online with state government. Similarly, 75% of those who have yet to file state income taxes online wish to do so in the future.

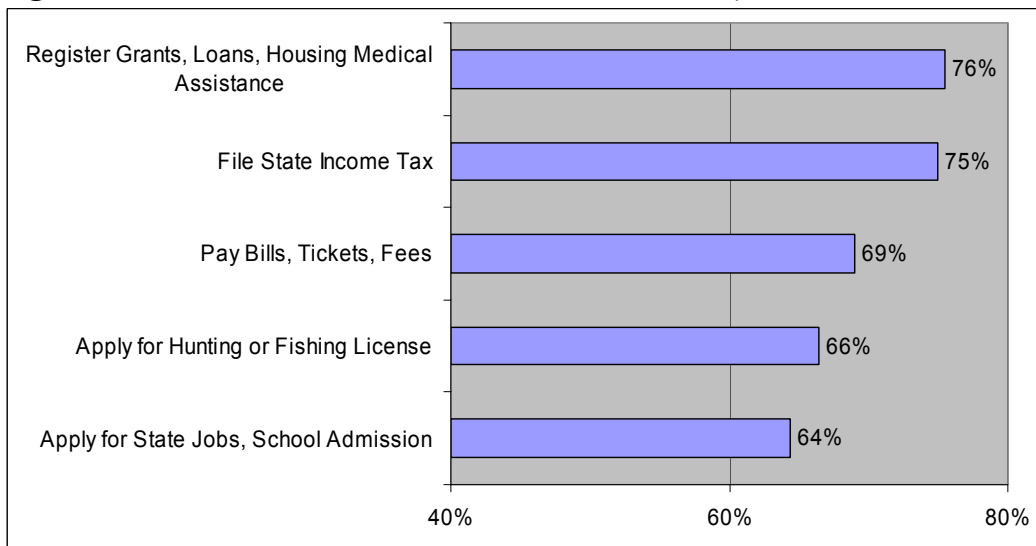
¹¹ The median is a more appropriate measure of the satisfaction scores than the mean. The median is defined as the point where 50% of the values lie above the median and 50% of the values lie below.

Figure 10. Possible Overall Future Demand for Online Services



Paying bill, tickets, and fees online also received strong demand from those who have not conducted these transactions online before with 69 percent expressing an interest in doing so in the future. The demand for application for fishing and hunting licenses online and application for state government jobs or school admissions online are almost equally as strong. The former is likely to attract 67 percent of those Iowa adults who have not used the service. The latter interests 65 percent of Iowa adults.

Figure 11. Demand for Services Online in the Future (Percent Yes of Non-users)



Source: Iowa E-Government Citizen Survey

A more careful analysis of current use in conjunction with future demands for online services reveals the unmet need of Iowa citizens for these services. Table 5 presents the results of such analysis. The far right column indicates the percent of the Iowa adult Internet population

whose demand for a particular online service is left unmet. For instance, 65 percent of Iowa Internet users who prepared their own taxes are currently e-filing. Of the remaining 35 percent of the online population, 82 percent would like to do e-filing in the future. This means that approximately 25 percent of the total online population has unmet demand for conducting this service online, as shown in the figure in the first column.

The numbers in table 5 indicate significant online opportunities for many other types of services in the future. For example, survey results indicate that currently only three percent of Iowa's online population are applying for recreational licenses online, such as fishing or hunting licenses. The results indicate, however, that an additional 64 percent of the Iowa's online population will demand to do this type of transaction online in the future. Moreover, survey results indicate that 65 percent of Iowa adults who are currently online will demand online registration, such as registration for housing assistance, loans, or medical benefits, in the future. Paying bills, tickets, and fees online in the future is also of great interest to Iowa's online population. More than half, or 58 percent, want to conduct these transactions online in the future. Applications for state jobs or educational opportunities are also of interest to Iowa's online population, with 54 percent expressing an interest in completing applications online in the future.

Table 5
Overall Unmet Demand for Online Transactions and by Age Group

<i>Online Services</i>	<i>Overall Future Demand</i>	<i>Unmet Demand by Age Group (years)</i>									
		18-19	20-24	25-34	35-44	45-54	55-59	60-64	65-74	65-74	85+
E-filing State Income Taxes	25%	60%	0%	45%	19%	25%	20%	33%	33%	50%	0%
Recreational Licensing	64%	44%	68%	73%	74%	60%	50%	54%	44%	50%	0%
Online Registration for Assistance	65%	44%	64%	76%	71%	59%	61%	77%	41%	75%	0%
Paying Bills, Tickets, Fees	58%	69%	46%	72%	67%	52%	50%	54%	25%	50%	0%
State Job or School Applications	54%	25%	43%	75%	64%	51%	42%	50%	25%	0%	0%

Source: Iowa E-Government Citizen Survey

For age group analysis, table 5 suggests that the strongest demand comes from citizens who feel most comfortable online and who express a strong need for conducting online transactions. The numbers highlighted in light green are those having above average demand for a particular service. For example, in the case of e-filing, strong future demand can be seen in the older age group (65-74) and among young professionals (25-34). In contrast, future demand by mid-age groups (35-59) is lower than average. This is probably due to the high utilization rate by the people in each respective group.

Those in the 25-34 and 35-44 age groups consistently exhibit strong future demand for various online services. These citizens are most likely to benefit from state government putting these services online because of their busy schedule as a result of family and work demands. One interesting observation is the strong demand in the older age group (65-74) for registration for government assistance (75%). This indicates that seniors are willing to conduct business online

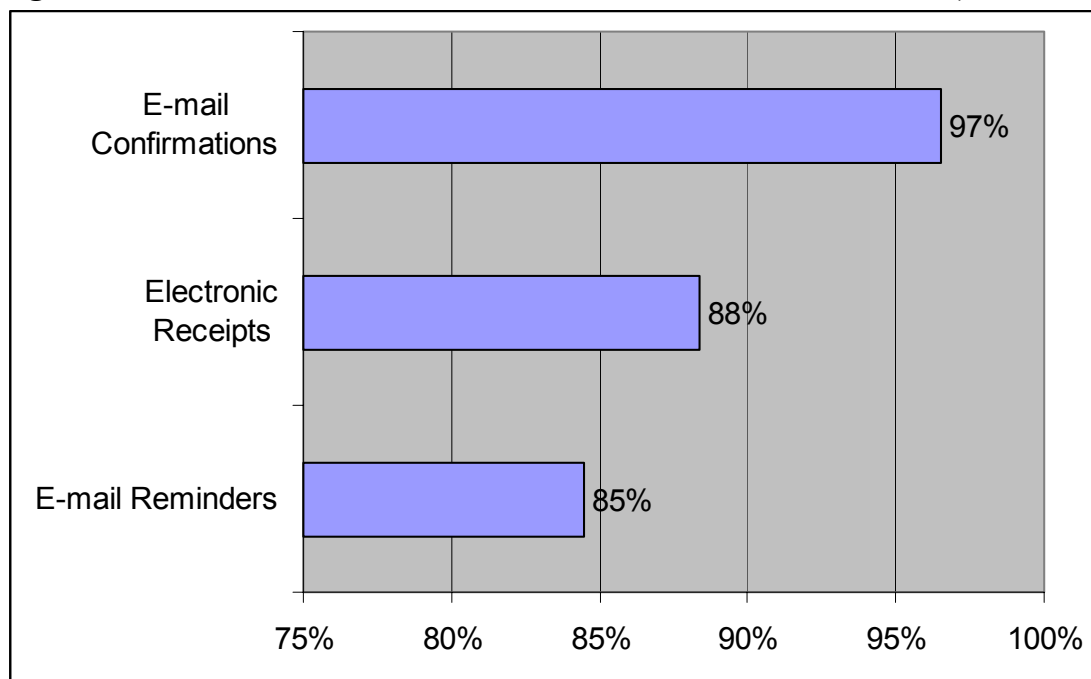
when it is pertinent to their specific needs. Registration for housing assistance and medical benefits are examples of the types of services that are of specific interest to seniors.

The analysis of overall future demand for online services and individual demands for specific age groups provides valuable policy information for setting funding priority. For example, the IOWAccess Council may wish to give priority to agencies proposing to develop online transactions for which there is strong demand, taking into account the specific demographic groups for targeting.

Enhancements of Online Services

There are several functionalities that can be introduced to online transactions for citizens: sending e-mail confirmations of transactions, offering electronic receipts for transactions, sending e-mail reminders for deadlines, and etc. Iowa citizens were asked to name the enhancement(s) they would most want the state to provide. Citizens are already taking advantage of such e-commerce functions on a regular basis when conducting transactions with companies in the private sector, namely, banks, suppliers, and etc. They should expect that state government would be able to offer similar services. The study has found high demand for three functionalities (figure 12). About 97 percent of Iowa citizens demand receiving e-mail confirmation of submittals for their online transactions with state government. About 88 percent of them would like to receive electronic receipts for their online payments to state government. E-mail reminders of deadlines for transactions with government are also popular among Iowa citizens; about 85 percent of them would like to have the service available on state government Web sites.

Figure 12. Demand for Enhancements to Online Services for Citizens (Percent Yes)

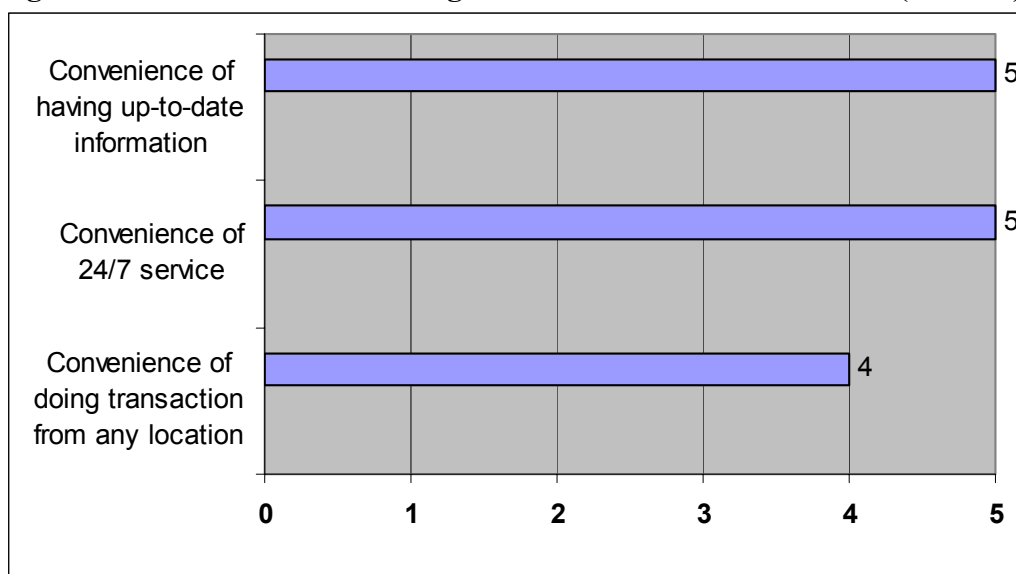


Source: Iowa E-Government Citizen Survey

General Attitude toward Benefits and Barriers

In general, Iowa citizens see several benefits of conducting business online with state government (figure 13). They rank convenience of having up-to-date information and convenience of 24/7 services as the primary benefits of doing business online with state government. The median score of importance for both benefits is 5 on a scale of 1-5 (1 meaning “not important at all” and 5 meaning “very important”). Of the 258 citizens responding to the question, 69 percent say that convenience of having up-to-date information is very important and 51 percent say that convenience of 24/7 is very important. The convenience of doing online transactions from any location follows somewhat behind as the number three benefit with 40 percent saying it is very important.

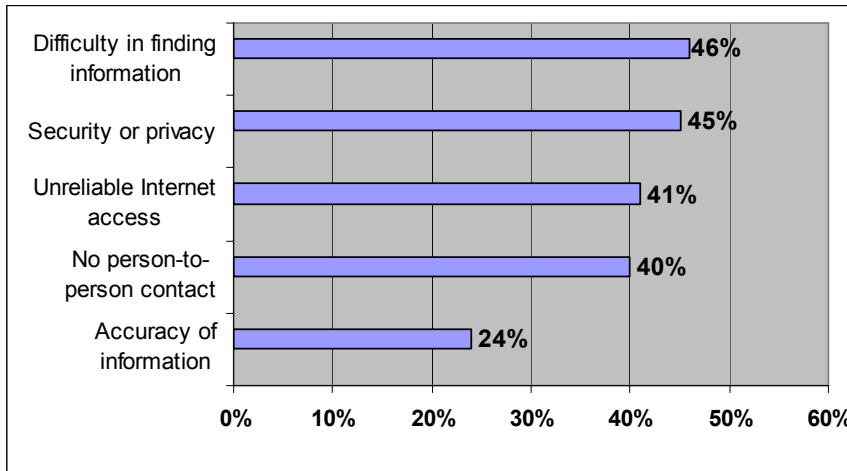
Figure 13. Benefits of Transacting Online with State Government (Median)



Source: Iowa E-Government Citizen Survey

Iowa citizens also face barriers when conducting online transactions with state government (figure 14). These barriers represent opportunities for government to enhance the online experience of citizens. Forty-six percent of citizens indicate that the number one obstacle to conducting transactions online with government is the difficulty in finding information or websites. Concerns about security or privacy follow as the number two barrier (45%) for conducting online transactions with government, while unreliable Internet connections (41%) and no person-to-person contact (40%) ranked third and fourth respectively. For most citizens, the accuracy of information did not pose a significant barrier. Only 24% ranked accuracy as a barrier to conducting online transactions with government.

Figure 14. Barriers to Online Transactions with State Government (Percent Yes)



Source: Iowa E-Government Citizen Survey

Financing E-Government Services for Iowa Citizens

Developing online transactions capacity for state agencies is not without its cost. More importantly, there will be continuing costs involved in maintaining online transaction capacities. Thus, it is useful to have a pricing framework so that state agencies can determine their ability to recover development costs and to provide a revenue stream for maintaining online transactions capacity. Not all transactions are amenable to cost recovery, and some transactions may generate higher fees than others. There are three types of online services that a state agency can provide. The most basic service is that which only government can provide and that which all citizens must utilize. Tax filing is a good example. Citizens cannot avoid paying taxes; it is a basic requirement of citizenship and a basic function of government.

The second kind of services (optional) involves those which are required for specific activities, and for which speed of transaction has financial consequences for the citizen. When a citizen needs to register to conduct a certain activity, the registration may be posted through the mail or brought to the agency office. Both options accrue transaction costs beyond the normal requirements for completing the application. Posting by mail, for example, means several more days of delay before the application actually gets to the agency and processed. Even assuming the registration is not lost or misdirected in the mail, the delay in processing the registration may present opportunity costs for the citizen. That is, the citizen may lose the opportunity to receive services that come with the registration. The cost of the registration now includes the fee to the state agency plus the mailing expenses, plus the loss stemming from opportunity costs. Alternatively, filing the registration personally at the state agency would require that person to travel to the agency office, perhaps thereby accruing parking expenses and travel expenses, and accruing other costs in salary and benefits, not to mention vehicle maintenance cost, and so on.

On the other hand, filing the registration online through the agency's website would dramatically reduce the time between completing the application and filing it with the agency, while eliminating travel and salary expenses. A citizen can examine the situation from an economic perspective, comparing the relative cost of filing the permit online, filing in person, or filing by mail. Thus, if a citizen has information that indicates an online filing would receive faster processing, and there is a choice between faster and slower processing, that citizen should

be willing to pay a fee less than or equal to the transaction costs incurred with other options, all other factors being equal. In this case, the online transaction fee would be considered a convenience fee, that is, an expense that the citizen would be willing to pay to expedite transactions and reduce total transaction costs and opportunity costs.

A third type of specialized services encompasses those transactions that a state agency can provide which can be compared to a private good; that is, when a particular service is provided to one citizen, the same service cannot at the same time be provided to another citizen. Moreover, unless the citizen (as a customer) is willing to pay for the service, the agency is under no obligation to provide it. The agency may have authority to provide the service, but it is under no mandate to do so. A good example of this type of service would be a customized search of a database that requires special programming and hence extraordinary staff time. Agency staff would have to compile the search and provide the citizen with the requested customized dataset.

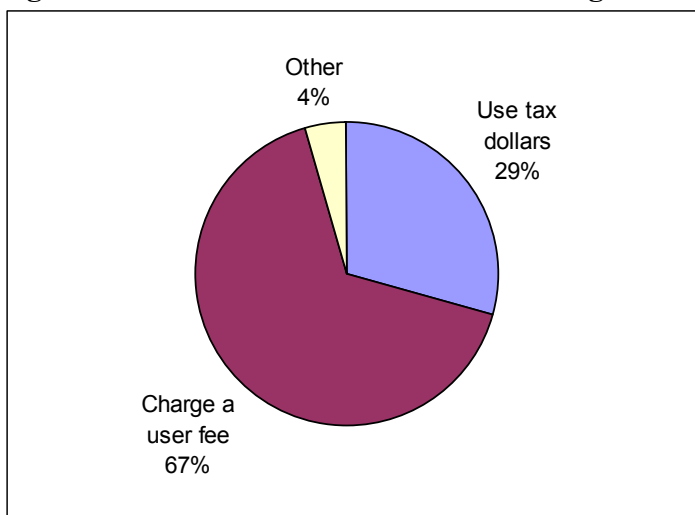
The most important point of this framework is that it suggests a corresponding tiered pricing structure. The examples provided below are not exhaustive representative of each service type. At the “basic services” tier, there is little justification for charging a citizen additional fees for a transaction. Basic services that resemble pure public goods should generally be paid through general tax dollars, not transaction surcharges. On the other hand, transactions in the “optional” (convenience) tier are very amenable to fee charges based on the benefits principle of public finance. These services are optional activities and they provide definable, direct personal benefits to the citizen. The cost of convenience would be paid by a citizen when it is decided a lesser expense is better than or equal to expenses incurred through other transaction methods (such as visiting the agency on-site, or transacting by mail). Finally, transactions in the “specialized” tier can command higher charges since those services are specific to a citizen’s particular requests and such unique requests for services amount to a commodity for which the citizen derives exclusive benefit and is willing to pay. The pricing of such services is limited only by the value of the commodity to the citizen. Nevertheless, the pricing can be fixed at a minimum to reflect the extra costs of providing the customized service.

Below we examine the basic attitudes of citizens regarding the appropriateness of using fees or paying taxes to recover development costs, and their willingness to pay fees—and how much—for certain types of online transactions with state agencies.

Citizens’ Opinions on User Fees for E-Government Services

A majority of Iowa citizens who have used the Internet are in support of charging user fees to pay for the development costs of e-government services (figure 15). When surveyed, citizens were reminded of the cost of developing e-government services. Citizens were presented with two options: (a) use tax dollars to pay for the development costs, or (b) charge user fees to recover the development costs. They expressed their preference over these two options as a general principle. Out of 285 responses, 67% of citizens prefer user fees while 29% prefer using tax dollars. The remaining 4% of citizens indicate that they would prefer different options.

Figure 15. Citizen Preferences for Financing of E-Government Services



Source: Iowa E-Government Citizen Survey

The support for user fees is even stronger when the online service in question is used by a specific group of people. When citizens were asked to make the choice between user fees and tax dollars for financing online services that are used by a specific group, the percentage of people supporting user fees increased by another 16 percent to reach 83 percent. The percentage of people preferring tax dollars decreased to 15 percent from 29 percent.

Income does not play a role in choosing user fees as the preferred way of financing e-government information and services. This study divided household income into five brackets: (a) less than \$25,000, (b) \$25,000 to 50,000, (c) \$50,000 to 75,000, (d) \$75,000 to 100,000, and (e) more than \$100,000. Over 70 percent of people in the lowest income bracket as well as in those in the \$75,000 to \$100,000 bracket, indicated that charging user fees is a better option (78 and 74 percent, respectively). The remaining groups show similar rates of support for charging user fees as close to the average for all five groups. The rates are only 2-3 percentage points within the average of 67 percent.

General Preferences Regarding Payment Methods and Surcharges

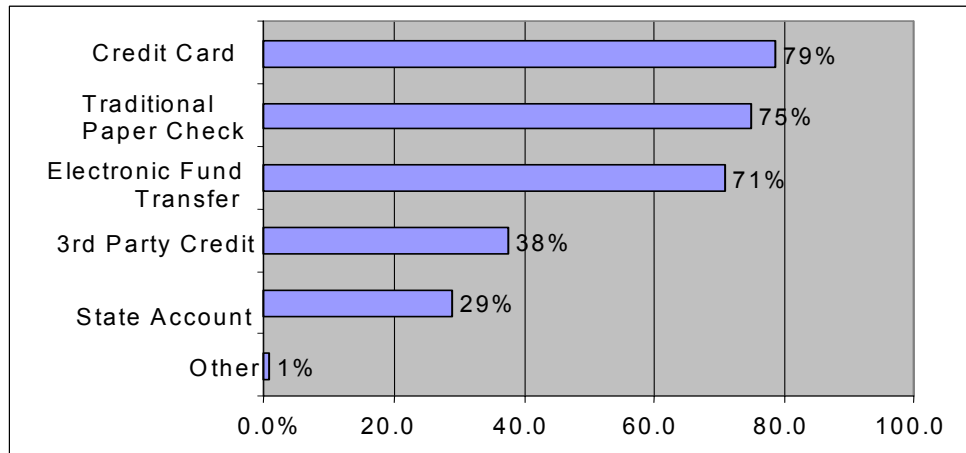
Credit card, traditional paper checks, and electronic fund transfer established themselves as the three leading payment choices by Iowa citizens when they were free to indicate more than one type of preferred payment method. The rates of support for these top three choices are only a few percentages apart (figure 16). Seventy-nine percent of Iowa online citizens preferred to use credit cards as their payment method. Traditional paper checks came in second with seventy-five percent of online citizens indicating it as the preferred option. The third most popular payment choice was electronic fund transfer (e.g., EFT, ACH, or e-checks),¹² which was supported by 71 percent of citizens.

Using a credit card through a third party and state charge account generated limited interests from Iowa online citizens. Using a credit card through a third party, such as Pay-Pal®, received comparable limited interest. About 38 percent of citizens indicated interest in this

¹² EFT refers to “electronic fund transfer.” ACH refers to the “Automated Clearing House” network, which is a nationwide batch-oriented electronic funds transfer system.

option. A charge account with the state government received the least amount of interest. About 29% of citizens see it as a desirable payment option. The sum of the percentage distribution below is greater than one hundred. This is because citizens were able to choose multiple payment methods.

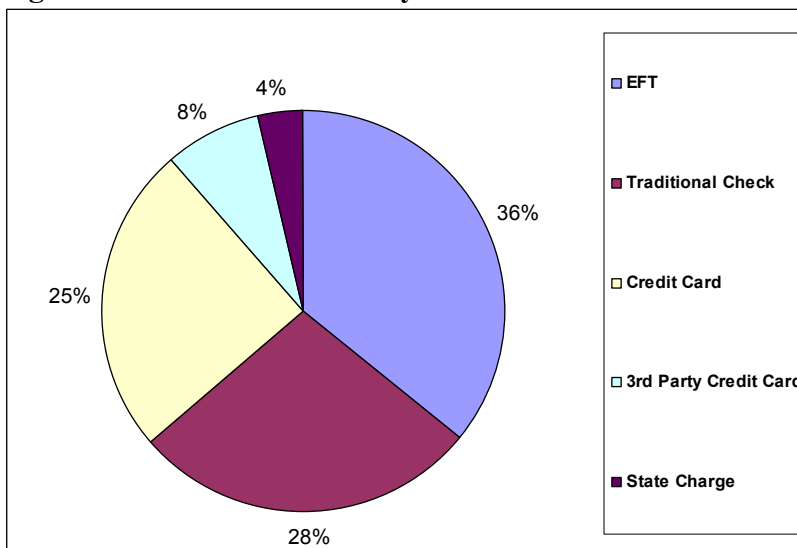
Figure 16. Citizen Preferences for Payment Methods (Percent Yes)



Source: Iowa E-Government Citizen Survey

In the survey, citizens were also able to prioritize their preferred methods of payment by choosing only one of payment methods. Results indicate that electronic fund transfer was the most preferred option (36%), leading even the traditional check option (28%, see figure 17). The credit card payment option followed closely behind the check option with 25 percent of citizens supporting it. Third party credit cards and the option of a charge account with the state government were the least preferred options with 8 and 4 percent, respectively. The results presented in figures 16 and 17 can help state agencies select the most desirable payment methods to meet the preferences of citizens.

Figure 17. Most Preferred Payment Method for Online Transactions



Source: Iowa E-Government Citizen Survey

Although Iowa citizens who would like to have electronic methods such as electronic fund transfer and credit card options available, a majority of them would not want to pay an additional charge of 1% in order to use these payment options. Out of 259 citizens indicating a preference for electronic payment methods, 64 percent of them would not want to be charged an additional 1% for a service fee. However, when it comes to a charge account with the state, the majority of those citizens who would like to make it available are willing to pay \$1 extra per transaction to cover the cost of processing online transactions written to their accounts. For the 76 citizens in the sample who would like to have a state charge account available from the state, 65 percent of them are willing to pay that one extra dollar. This indicates that a flat nominal fee would be more acceptable than a percentage charge (which is typical of credit card payment options). In sum, Iowa citizens are not willing to pay for surcharges. However, a basic transaction fee seems to be more palatable for most Iowans.

Willingness to Pay for Online Transactions

One of the primary goals of this study is to determine the demand for online transactions. We define demand for services as both [1] a preference for a service *and* [2] the willingness to pay for that service. If a citizen is willing to pay something for a service, it is more likely that the person will use the service if it is available. Willingness to pay will be affected both by the preferences an individual has for a specific service, and the price of that service relative to other service options.

To gauge how willing citizens are to pay for online transaction with state agencies, citizens were first asked about the transactions that they would like to conduct online with a state agency. Against that backdrop, they were made aware that the full cost of conducting a transaction with state agencies offline may involve various costs such as travel expenses, travel time, waiting in line, postage costs, or mail delay. The survey then asked whether they would be willing to pay \$1, \$2, and \$4 for the convenience of online transactions in general. One can approach the results from two perspectives. About 9 percent were unwilling to pay any amount. About 7 percent of respondents were willing to pay more than \$0 but less than \$1, while 29 percent were willing to pay a fee of \$1 per transaction. Another 24 percent were willing to pay a \$2 per transaction fee. Another 27 percent were willing to pay fees higher than \$2 for each transaction. Thus, from an alternative perspective, one can determine from figure 18 that about 83% of these citizens would be willing to pay at least \$1 per online transaction. About 51% are willing to pay \$2 or more for each preferred transaction, while only 24 percent are willing to pay \$4 or more per transaction.

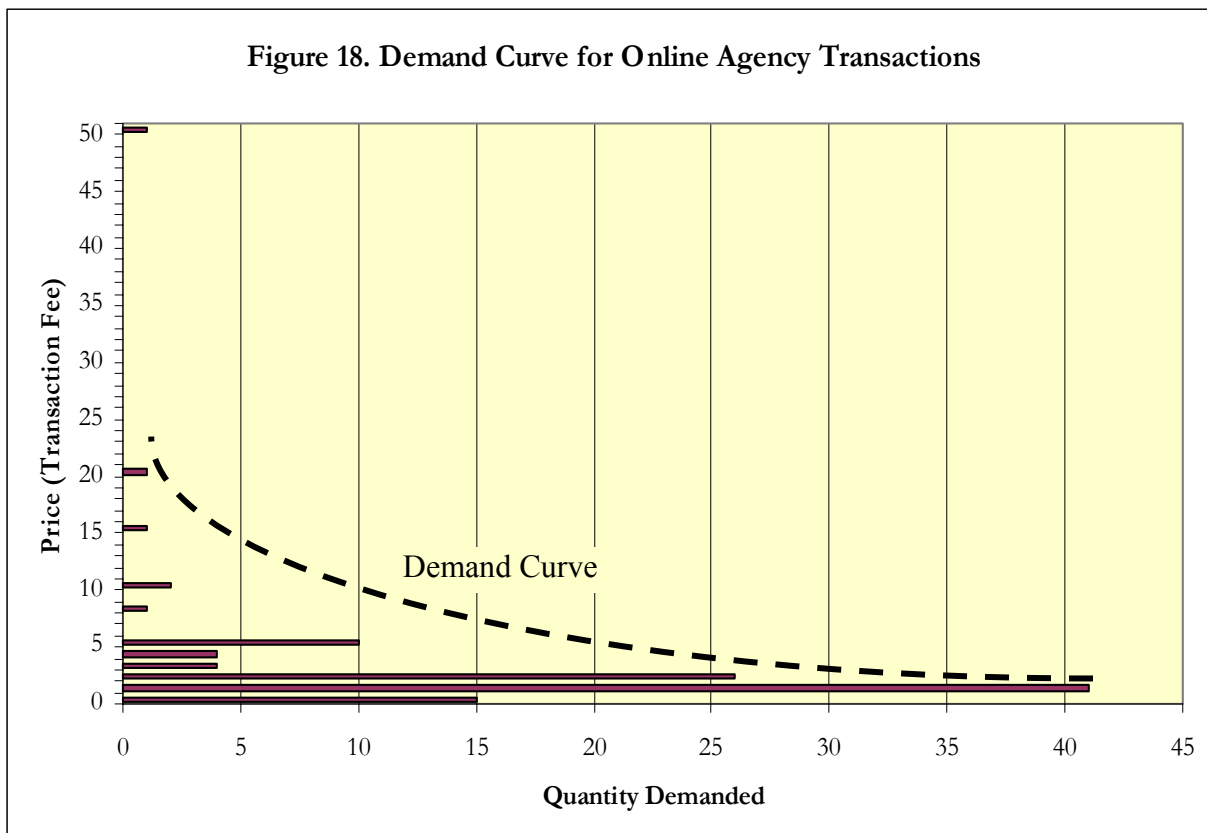
Citizens were then asked about the highest user fee they would be willing to pay to conduct their preferred transactions with a state agency online. This question also gave citizens the opportunity to indicate a value of less than \$1. About 14% do not want to pay anything, indicating a zero amount as the highest fee they would be willing to pay for online transactions (table 6). About nine percent are willing to pay \$0.01-0.99 per transaction, while 29 percent would prefer to pay a maximum of \$1 per transaction. About 25 percent are willing to pay \$2 per transaction, while a little over 15 percent are willing to pay \$4 or more to conduct their preferred transactions with a state agency online. The highest amount that a citizen would consider paying is \$50 for each transaction. Figure 18 presents the wide range of values that citizens assign to the convenience of conducting transactions online; the super-imposed demand curve conveys that the demand for online transactions is very elastic, or sensitive to price. Citizens are most willing

to pay \$1-\$2 per transaction, though some are willing to pay much more, depending upon the specific transaction.

Table 6.
Maximum Willingness to Pay for Preferred Service Online (Open Question).

<i>Fee</i>	<i>Frequency</i>	<i>Percent</i>	<i>Cumulative Percent</i>	<i>Fee</i>	<i>Frequency</i>	<i>Percent</i>
\$ 0.00	15	14%	14%	<i>(Sorted by Highest to Lowest Frequency)</i>		
\$0.01-0.99	10	9%	24%	\$ 1.00	31	29%
\$ 1.00	31	29%	53%	\$ 2.00	26	25%
\$ 2.00	26	25%	77%	\$ 0.00	15	14%
\$ 3.00	4	4%	81%	\$0.01-0.99	10	9%
\$ 4.00	4	4%	85%	\$ 5.00	10	9%
\$ 5.00	10	9%	94%	\$ 3.00	4	4%
\$ 6.00	0	0%	94%	\$ 4.00	4	4%
\$ 7.00	0	0%	94%	\$ 10.00	2	2%
\$ 8.00	1	1%	95%	\$ 8.00	1	1%
\$ 9.00	0	0%	95%	\$ 15.00	1	1%
\$ 10.00	2	2%	97%	\$ 20.00	1	1%
\$ 15.00	1	1%	98%	\$ 50.00	1	1%
\$ 20.00	1	1%	99%			
\$ 50.00	1	1%	100%			
106 total responses						

Figure 18. Demand Curve for Online Agency Transactions



Source: Iowa E-Government Citizen Survey

With the exception of income, various demographic characteristics do not seem to play a role in determining how much a citizen is willing to pay. The analysis of these characteristics against paying 1, 2, and 4 dollars is reported in table 7. The percentage in a cell indicates the percentage of people belong to a particular demographic group saying “yes” to paying a designated amount of fees (\$1, \$2, or \$4). For instance, for gender, 84 percent of female respondents are willing to pay 1 dollar and the percentage drops to 57 percent when \$2 fee is asked of them.

Residence does not make a significant difference in supporting user fees. The percentages of people in various residence groups who are willing to pay \$1 are close to one another. People in the farm area are, in percentage terms, as supportive as those in the big cities to pay \$1 for the convenience. It is also the case for larger cities. In general, there is significant drop in support when higher fees are considered. Again, living in a relatively large city does not mean that a person is more likely to pay a higher fee than those in a small township.

Education also was not a factor in shaping the decision on how much an Iowa citizen was willing to pay. Someone with an associate degree was as likely as someone with a four-year college degree to pay \$1 dollar for the service. There is no clear pattern that exists between higher level of education and stronger willingness to pay for online services. One interesting observation is that support for higher fees drops off fairly quickly for people who either have an eleventh grade or less education or who hold a vocational/technical certificate.

As mentioned earlier, income seems to play a role in determining willingness to pay as one might expect. People in the lower income brackets more strongly support the use of \$1 fees than higher charges. People in the lowest income bracket reject the idea of \$4 fees. For higher income groups, the support for higher fees such as \$2 or \$4 continues to be strong.

Citizens were also asked if they would be willing to conduct the transaction online if it costs them less than the traditional method of transactions. The savings are put in the context of full transaction costs, including gas, traveling time, waiting in line, postage, or mail delay. About 94 percent of citizens regard a minimum savings of 4 dollars as a favorable condition for them to obtain their desired information and services online. As one may expect, online options become less attractive when the savings become smaller. When the savings is reduced to 2 dollars, slightly fewer people (91 percent) would like to do it online. The results drop to 84 percent when savings will be only \$1 by taking the online option. These drops in percentage do not conceal the fact that a vast majority (84 percent minimum) of them are willing to conduct the transaction online even when savings are rather nominal.

This shows a strong preference for citizens to see some savings in conducting transactions online, but it is not necessary. This means citizens might not be discouraged by being charged a few dollars to conduct transactions online because traveling and waiting in line is likely to cost them more. Interestingly, savings are not really necessary. Over 92 percent of citizens are willing to conduct the transaction online even if it costs the same as its offline alternative. This implies that citizens are willing to pay an online transaction fee less than or equal to the difference between the second least cost option and the online one. Thus, in light of this, the “willingness to pay” factor can be translated into a broad range of fees, depending on the nature of the transaction and the difference in transaction cost between online option and its second least cost alternative.

Table 7
Amount of User Fees that Citizens are Willing to Pay by Demographics

	\$1	\$2	\$4
Gender			
Male	81%	67%	56%
Female	84%	57%	39%
Residence			
farm or in a rural area	83%	71%	40%
town of less than 2500	79%	40%	33%
town of 2500 up to 10,000	81%	71%	20%
town of 10,000 up to 50,000	90%	65%	58%
city of 50,000 up to 100,000	88%	71%	80%
city/metro of 100,000 or more	79%	55%	55%
Age			
18-19 Yrs Old	100%	0%	
20-24 Yrs Old	100%	100%	47%
25-34 Yrs Old	93%	46%	67%
35-44 Yrs Old	78%	62%	56%
45-54 Yrs Old	79%	65%	57%
55-59 Yrs Old	63%	60%	33%
60-64 Yrs Old	67%	10%	0%
65-74 Yrs Old	83%	75%	0%
75-84 Yrs Old	100%	100%	0%
85 and Up			
Education			
Eleventh grade or less	100%	9%	0%
High school (includes GED)	88%	83%	68%
Vocational/tech. certificate	75%	67%	0%
Some college, no Bachelor's	84%	78%	46%
College 4 year degree	75%	39%	29%
Graduate degree	77%	50%	60%
Income			
Less than \$25,000	100%	82%	0%
from \$25,000 up to \$50,000	90%	63%	59%
from \$50,000 up to \$75,000	89%	63%	47%
from \$75,000 up to \$100,000	74%	50%	57%
more than \$100,000	67%	67%	50%

Source: Iowa E-Government Citizen Survey

Types of Online Services for Which Iowa Citizens Will Pay

Citizens were asked to reveal the maximum fee they would be willing to pay for specific services that they have identified that they wished to conduct with the state online. Due to sometimes large variation in amounts that individuals are willing to pay, we present two numbers for consideration (figure 19). One is the mean that is rather sensitive to a few individuals who are willing to pay a large amount. The other is the median, capturing the amount that half of the people are comfortable with. For example, while on average people are willing to pay approximately a \$2.30 online fee for a hunting license, half are only willing to pay \$1.25 or less.

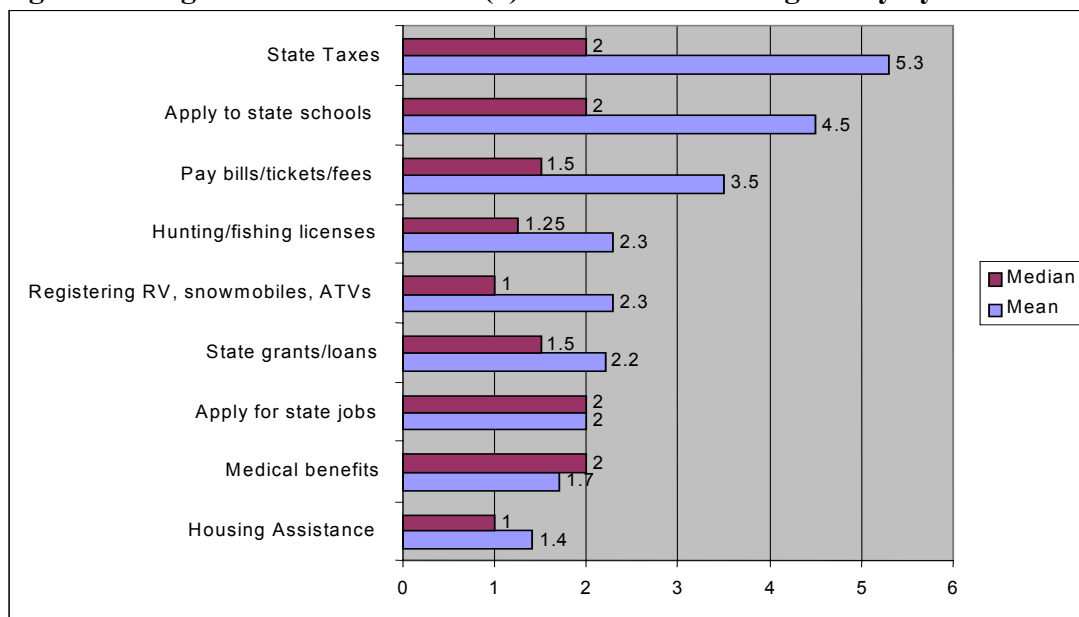
The discussion below will focus on the average. As seen in figure 19, the median acceptable fee is about \$2 for many services.

E-filing is the number one transaction that Iowa citizens would like to pay to do online. This has the highest (on average) maximum fee amount of approximately \$5 that these citizens are willing to pay for an online tax transaction. Although we lack evidence, we speculate that this preference is influenced by the desire for a rapid refund (if due) or a calculation that an online fee is less expensive than using a financial intermediary (i.e., an accounting firm) that will e-file as part of their overall fee.

Application for state school is considered by Iowa citizens as the second most desirable services in terms of their willingness to pay. They are willing to pay on average \$4.50 to have the application online. Paying bills, tickets, and fees online follows. Citizens are willing to pay, on average, \$3.50 for the convenience of having it online. Examples include paying for parking or speeding tickets as well as fees for transactions with government.

Registration of recreational vehicles, snowmobiles, and all terrain vehicles online receives the same \$2.30 valuation by citizens. Getting state grants and loans is slightly behind with \$2.20. The convenience of applying for state jobs and medical benefits from state government online is valued at \$2.00. Getting housing assistance is the least valued online services. It could be that citizens feel that the online option should be part of the service they entitled as part of paying taxes.

Figure 19. Highest Amount of Fees (\$) Citizens are Willing to Pay by Services



Source: Iowa E-Government Citizen Survey

Conclusions and Recommendations

Iowa citizens are active participants in the Internet age. Survey results show that 79% of them are currently online. An additional 6% will connect to the internet by June 2006. This will bring the penetration rate close to 85%. Access to Internet for personal transactions with state government on the Internet involves the use of a computer with an Internet connection. The type of connection also makes a difference. Home computer presence is at 75 percent, a level that is 15 points ahead of the 2001 national average (U.S. census). The percentage of home computers connected to the Internet in Iowa (87 percent) is comparable with the nation (90 percent). Broadband access is available for close to half of the Iowa adult Internet users (48 percent), which is slightly behind the national average of 55 percent. As expected, young and middle-age Iowa adults are more likely to be Internet users than older Iowans.

The prevalence of Internet use, and more importantly, the access to high-speed connections, places Iowa adults in a good position to interact with state agencies online. In general, Internet access does not seem to be an issue for a majority of Iowa citizens. Moreover, with more than half of Internet users having broadband access, state agencies can develop high-performance online transactions targeted at broadband users. However, state government needs to be sensitive to the issue of the digital divide since the use and access to the Internet is not universal. A reasonable approach is to have a profile of various service channels and evolve them with the changing makeup of Internet population to improve the efficiency as well as effectiveness of service delivery. For the small percentage of Iowa citizens who are still not connected to the internet, the study suggests that cost and lack of need are the two main barriers. If the state were to offer assistance in lowering the costs of Internet access, more citizens might connect to the Internet.

Iowa citizens see both benefits and costs when they consider conducting online transactions with the government. Citizens value the benefit of having up-to-date information most, and they value also the convenience of 24/7 service. Over half of them view these two benefits as “very important” on the scale of 1-5 (5=“very important”). In comparison, convenience of doing transaction from any location is slightly less important; a majority ranked it as “important” or “very important.” Nevertheless, Iowa citizens also face barriers potentially preventing online transaction with the state government. The number one barrier is the difficulty in finding information that they are looking for. Security or privacy concerns are also high on the list of concerns. It could be due to recent events on identity theft and loss of credit card and personal information. Lack of reliable Internet access still presents a problem for Iowa citizens. No person-to-person contact is another concern that receives attention similar to lack of reliable access. The accuracy of information is the least of citizens’ concerns. It is probably because of the trust they have on the accuracy of online information on government Web sites.

The prioritized list of benefits and barriers will help the state government plan strategies for maximizing return while providing online government services. The priority items are:

- better content management
- usability
- and protection of privacy via information security.

Proper content management helps to ensure information is up-to-date, a major benefit of e-government for Iowa citizens. Iowa citizens should be consulted when designing web sites. They can provide guidance on drafting frequently-asked-questions and designing user-centered navigation schemes. If successful, state websites will help citizens find information easily and

encourage online transactions. Moreover, the state needs to address the issue of privacy and security. It may involve implementation of high-standard information security measures and communication with citizens about the level of security that they enjoy in transacting with government.

Demand for online services is robust. With the exception of e-filing, all services have only an average of less than 15 percent of Internet users working online. About 70% of Iowa Internet users that currently are not conducting transactions online say they would like to do so in the future. This means that the state can initiate outreach to over half of Iowa Internet users while cementing its relationship with the 15 percent that it already is serving online. This magnitude of demand holds across a broad range of possible online transactions, from online registration to receive government assistance to online applications for hunting and fishing licenses.

The State of Iowa can realize the full potential of information technology to deliver value to the majority of Iowa citizens that express interests and have the access to transact with government online. The State of Iowa should actively pursue those opportunities by offering citizens the services they need. This study recommends an overall strategy with four interrelated components.

- First, the state can take an enterprise approach in developing engines and modules such as payment engine and access management for security that can be used in various online transactions. This is to economize on development costs.
- Second, the state needs to provide online payment methods and design a fee structure that will help increase adoption rates to achieve economies of scale.
- Third, the state needs to offer enhanced functionalities such as e-mail confirmation, receipts, and e-mail reminders as desired by Iowa citizens.
- The fourth component relates to financing the development and maintenance of online transactions capacity in state agencies. Iowa citizens are in support of user fees to finance e-government projects. They prefer user fees even more when an online service benefits a specific user group. Interestingly, income does not play a role in determining the preference on financing, choosing between user fees and tax dollars. However, willingness to pay specific amounts is very elastic with respect to household income. State agencies need to examine public policy implications of a fee level. To be accountable, these agencies probably need to conduct a full-cost accounting to fully understand the cost involved. Then, they need to look at the number of citizens and the extent to which they will benefit from the services.

Electronic fund transfers (including ACH, e-checks, etc), traditional paper check, and credit card are payment methods preferred by Iowa citizens transacting with state government. When given the option of choosing more than one method, a credit card, traditional paper check, and electronic fund transfer (EFT) still ranked on the top although the rankings have changed. This indicates that, if the state would like to offer multiple methods of payment, it can meet citizens' preference by having EFT, traditional paper check, and credit card available.

Figure 20. Transaction Pyramid for Pricing Framework for Iowa's eGovernment Services

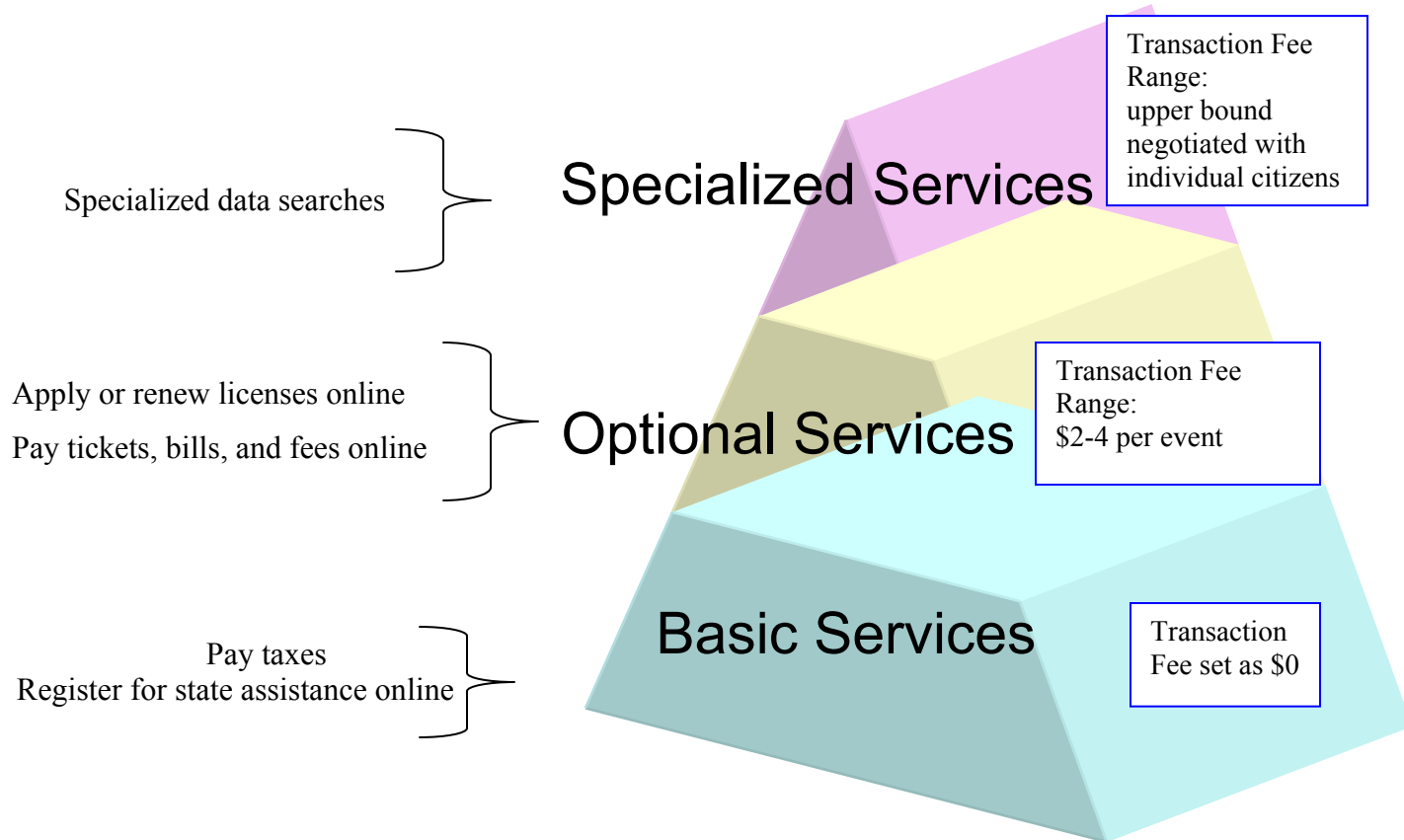


Figure 20 presents the transactions pricing framework as a transaction pyramid, taking into account the willingness of Iowa citizens to pay for online transactions. The examples provided in the transaction pricing pyramid are suggestions to provide some policy guidelines. Circumstances of state agencies may dictate the extent to which these guidelines will be followed. The revised pyramid suggests that a basic service such as filing taxes online or registering for public assistance should not incur a transaction fee. However, it should be noted that Iowa citizens are willing to pay a premium to file their taxes online.

Optional online services, such as online registration and paying bills and tickets, are amenable to a transaction fee in the range of \$2. These fees can cover the development and maintenance of these online services. The citizens participating in the survey were made aware of the full potential costs incurred in traditional offline transactions (e.g., gas expense, travel time usage, postage costs, mail delays, etc.). In light of this, Iowa citizens seem willing to pay a little more for convenience and possible savings gained from switching to online transactions. Application for state schools and paying bills and tickets are the top two services for which citizens are willing to pay.

The willingness of a citizen to pay a fee represents a potential economic gain resulting from making e-government services available. State agencies need to consider this amount in their charge scheme for offering services online. This consideration should be placed in a context of providing cheaper and faster services for Iowa citizens.

Moreover, the survey results suggest that, to cover a particular payment, citizens prefer a charge that is a generic transaction fee rather than a surcharge. Citizens are willing to pay for convenience, but they resist obvious surcharges to cover credit card processing or other types of payment processing. In the private sector, such charges are incorporated into the cost structure of the pricing framework. The survey results suggest that state agencies should follow this practice. To the extent that allowing payment by ETF systems is possible, the costs of this payment method should be incorporated into the transaction fee structure for a particular service or agency.

Although figure 20 suggests an average fee range of \$2-\$4, the survey results indicate that citizens have a strong preference for savings gained from online transactions. Therefore, the willingness to pay may be much higher, depending upon the nature of each particular transaction. In any case, the survey data suggest that many citizens will pay for better service.

Finally, it should be noted that the specialized services at the top of the pyramid do not represent common transactions. These services may involve highly customized data searches requiring specialized staff work in programming and related tasks. The capacity to deliver these kinds of services for a relatively few citizens will likely result in a high unit cost. Thus, the transaction fee is best negotiated on an individual basis. Using the survey data, we are unable to identify any specific transactions directly pertaining to this category. However, we expect that such demands exist (e.g., GIS data requests).

This study represents an initial step in a complex process of addressing the questions and concerns linked with developing e-government potential. This report offers research data that can be used in the design and development of e-government services. It focuses on anticipating demand and assessing financing strategies. We defined demand for services as both a preference for a service *and* the willingness to pay for that service. The data can also be used to assist in the formulation of information technology policies targeting Iowa citizens. The study results are clearly important, though they should not be seen in isolation, nor should they be viewed as the single information source in the planning of service provisions and making of public policy. Other critical factors that must be considered in tandem include the public nature of certain services, existing financing systems, and long-term development plans of e-government capability.

Appendix A: Methodology

The e-government citizen survey research began in September 2004 and ended in July 2005. We began with a literature review and an annotated bibliography of research on electronic governments with specific references to e-commerce functions and payment options. We conducted a comprehensive review of forty-six Iowa state government web sites in order to determine what electronic government services were already offered to Iowa citizens. We then included these real-life services as options in the citizen survey. This appendix provides details about the design of the survey instrument and sampling, data collection, and data analysis.

Instrument and Sample Design

Intensive survey development began in mid-January 2005 and lasted through March 2005. The research team worked closely with the e-government survey subcommittee of the IOWAccess Advisory Council. Members of the subcommittee are David Redlawsk (University of Iowa), Mary Maloney (Polk County Treasurer) and Mariam Ubben (President, SITIworks). The subcommittee participated in conference calls with the researchers, monitored monthly project reports, and provided guidance on the project direction as well as the content of the citizen survey instrument. We also collaborated with Iowa State University's Center for Survey Statistics and Methodology (CSSM) on development of a telephone questionnaire for the survey.

The Iowa E-Government Citizen Survey was conducted using random digit dialing methods and a white pages sample of telephone numbers. White pages samples include phone numbers that are listed in telephone directories. While this type of sample does not include non-published numbers or most cell phone numbers, it nevertheless efficiently provides a good cross-section of Iowa residents. Both non-published numbers and cell phone numbers result in a higher-than-average refusal rate, and attempting to call cell phones also has the complication of varying minute/payment packages.

A sample of 1200 Iowa telephone numbers was purchased from Survey Sampling International, and an additional sample of 375 numbers was purchased during the data collection process to utilize as needed. Only 250 of the additional numbers were used for the project, bringing the total sample size to 1450.

Data Collection

The center (CSSM) was responsible for data collection. After the questionnaire was developed, pilot interviews were conducted with six individuals to help identify any troublesome items and adjustments were made to the questionnaire based on the results. The questionnaire was programmed using Blaise software and tested for accuracy by center staff.

Moreover, CSSM staff was responsible for recruitment, training, and supervision of telephone interviewers; and telephone interviewers were trained in appropriate techniques for screening households, identifying selected respondents, and for the interviewing process itself. A manual with interviewing procedures and question-by-question specifications was developed and used both for training and for reference throughout the interviewing process. Project training was held on March 23, and data collection took place in March and April of 2005.

When conducting screening calls and interviews, standard random digit dialing protocols were followed by CSSM staff. All phone numbers in the sample were called and classified into several categories. Non-working numbers were identified, and phone numbers associated with businesses (including fax lines), group quarters, teen-lines, or vacation homes were classified as

non-households. The remaining numbers were considered potential households and additional attempts were made to screen and identify selected respondents. Households could only be screened with an adult living in the household. If there were only one adult living in the household, that individual was automatically eligible to be interviewed. If there were more than one adult in the household, they were listed in order from oldest to youngest, and the computer selected one adult at random to be interviewed. A phone number was considered “screened” once a potential respondent was identified.

Phone numbers with no personal contact were rotated through a minimum of eight call attempts at various times (e.g., days and evenings, weekdays and weekends). Numbers were classified as ring-no-answer if no one was reached after these attempts. If an answering machine was reached, additional attempts were made to that number and messages were left to try to screen the household. Suspected fax lines and modems were also attempted at additional and varied times to determine whether they were actually a household number rather than a business. Refusals were classified as refused screen or refused interview, depending on whether the household had been screened and a potential respondent identified. Within those two categories, numbers were further classified as “hang-up” refusals, with no time allowed for explanation, or “other” refusals, which generally involved persuasive techniques. Refusal conversion attempts were made with most of the “hang up” refusals.

The goal was to contact households and then identify and interview a household adult. There were no other eligibility restrictions within households. All interviewing was done in the Center’s computer lab under the direct supervision of project staff. The interviews were 15 to 20 minutes in length. Interviewers were monitored at random intervals as a quality control measure, and the CATI software was programmed to include edit checks to detect illegal values or logic errors as responses were entered into the computer during the interview. Completed interviews were edited by project staff to check for consistency and were re-coded as needed. After the conclusion of the data collection period, the final data file was run and basic frequencies and cross tabulations were analyzed to identify and correct entry or coding errors.

Table A1 summarizes the results of attempts to interview the 1450 sampled phone numbers. Because a white pages sample was used, only 12.7% of the numbers were not in service, businesses, or other non-households.

Among the 1266 phone numbers presumed to be households, 39.7% of these residents refused to complete the screening process. An additional 1.4% were not able to complete the household screening due to language or hearing/health problems. Another 9.1% of the households completed the screen, so that an eligible respondent was identified, but that respondent either refused or was not able to complete the interview (due to language or hearing/health problems). In two other households, the selected respondent was serving in Iraq for the duration of the study, and so was unable to complete the interview. About 17.5% of the sampled numbers received a maximum number of call attempts before being finalized.

Table A1. Final Dispositions of Interview Attempts

<i>Final Dispositions</i>	<i>Total</i>	<i>%</i>
Total Sample	1450	
Not in Service	159	11.0% (of 1450)
Business & Fax only	13	0.9% (of 1450)
Other Non-Households	12	0.8% (of 1450)
Total Households	1266	87.3% (of 1450)
Refused Screen	503	39.7% (of 1266)
Other Non-Response, No Screen	18	1.4% (of 1266)
Screened, Refused Interview	84	6.6% (of 1266)
Screened, Other Non-Response	32	2.5% (of 1266)
Maximum Calls, Answering Machine only	56	4.4% (of 1266)
Maximum Calls, Ring No Answer only	17	1.3% (of 1266)
Maximum Calls, Other	150	11.8% (of 1266)
Unavailable for duration of study	2	0.2% (of 1266)
Completed Interviews	404	31.9% (of 1266)

In sum, interviews were completed with 404 of the households, for an overall response rate of 31.9% for all 1266 households with a valid phone number. Reported sample percentages are statistically valid within $\pm 5\%$ at the 95% confidence level. This means that, if 54% of the respondents answer a certain question affirmatively, the true percentage in the overall sampled population has a 95% chance to be between 49% and 59%.

Data Analysis: Weighting

The primary goal of weighting is to achieve a representation of the Iowa adult population using sample data. Weighting was prompted by disproportional representation of females in 404 respondents. We began by working with Census data to compile statistics on Iowa adults (18+) as the basis for comparison. Then, we identified demographic characteristics that showed significant differences between sample and population. Most of the tests used are tests of proportions at 95 percent confidence level. The test results show that gender, ethnicity, and age distributions in the sample are significantly different from those of the Iowa adult population.

Therefore, we derived a post-stratification adjustment factor (weight) using gender, ethnicity (white vs. nonwhite), and age group (18-19, 20-24, 25-34, 35-44, 45-54, 55-59, 60-64, 65-74, 75-84, 85+). This post-stratification procedure is well documented as a standard way to make sample composition the same as population composition.¹³ For example, a non-white male between 45 and 54 receives a weight of 1.37 to correct for under representation in the sample. All the analyses in the report are based on the weighted scheme to allow for generalization.

¹³ For more details on post-stratification weighting, see Lee, Sun Sul, Ronald Forthofer, and Ronald Lorimer. (1989). *Analyzing Complex Survey Data*. Newbury Park, London, New Delhi: SAGE Publications.

Appendix B. Demographic Analysis of Online Access at Home

% With Computer in Home		<i>Of which:</i> % With Home Internet Access		<i>Of which:</i> % With High Speed Connection																			
<table><tr><th>No</th><th>Yes</th></tr><tr><td>47</td><td>295</td></tr><tr><td>13.7%</td><td>86.3%</td></tr></table>	No	Yes	47	295	13.7%	86.3%	<div>YES</div>	<table><tr><th>No</th><th>Yes</th></tr><tr><td>36</td><td>259</td></tr><tr><td>12.2%</td><td>87.8%</td></tr></table>	No	Yes	36	259	12.2%	87.8%	<div>YES</div>	<table><tr><th>No</th><th>Yes</th></tr><tr><td>147</td><td>133</td></tr><tr><td>52.5%</td><td>47.5%</td></tr></table>	No	Yes	147	133	52.5%	47.5%	
No	Yes																						
47	295																						
13.7%	86.3%																						
No	Yes																						
36	259																						
12.2%	87.8%																						
No	Yes																						
147	133																						
52.5%	47.5%																						
Yes %		Yes %		Yes %																			
Gender		Gender		Gender																			
Male	87.5	Male	93.2	Male	49.0																		
Female	85.6	Female	82.6	Female	46.3																		
Residence		Residence		Residence																			
farm or in a rural area	83.1	farm or in a rural area	88.1	farm or in a rural area	29.8																		
town of less than 2500	77.0	town of less than 2500	73.9	town of less than 2500	47.5																		
town of 2500 up to 10,000	88.3	town of 2500 up to 10,000	88.7	town of 2500 up to 10,000	34.0																		
town of 10,000 up to 50,000	89.4	town of 10,000 up to 50,000	98.3	town of 10,000 up to 50,000	62.1																		
city of 50,000 up to 100,000	100.0	city of 50,000 up to 100,000	80.6	city of 50,000 up to 100,000	44.4																		
city of 100,000 or more	88.7	city of 100,000 or more	91.3	city of 100,000 or more	67.4																		
Age		Age		Age																			
18-19 Yrs Old	100.0	18-19 Yrs Old	100.0	18-19 Yrs Old	31.3																		
20-24 Yrs Old	73.7	20-24 Yrs Old	96.4	20-24 Yrs Old	21.4																		
25-34 Yrs Old	88.3	25-34 Yrs Old	86.8	25-34 Yrs Old	65.5																		
35-44 Yrs Old	95.0	35-44 Yrs Old	81.6	35-44 Yrs Old	55.7																		
45-54 Yrs Old	89.6	45-54 Yrs Old	88.5	45-54 Yrs Old	45.8																		
55-59 Yrs Old	90.9	55-59 Yrs Old	94.7	55-59 Yrs Old	55.6																		
60-64 Yrs Old	84.2	60-64 Yrs Old	87.5	60-64 Yrs Old	25.0																		
65-74 Yrs Old	74.1	65-74 Yrs Old	90.0	65-74 Yrs Old	41.2																		
75-84 Yrs Old	45.5	75-84 Yrs Old	80.0	75-84 Yrs Old	0.0																		
85 and Up	50.0	85 and Up	50.0	85 and Up	0.0																		
Education		Education		Education																			
Eleventh grade or less	90.5	Eleventh grade or less	95.0	Eleventh grade or less	27.8																		
High school (includes GED)	73.7	High school (includes GED)	84.1	High school (includes GED)	42.9																		
Vocational/tech. certificate	89.2	Vocational/tech. certificate	78.8	Vocational/tech. Certificate	40.7																		
Some college, no Bachelor's	90.7	Some college, no Bachelor's	93.6	Some college, no Bachelor's	44.0																		
College 4 year degree	95.8	College 4 year degree	88.2	College 4 year degree	59.7																		
Graduate degree	87.5	Graduate degree	85.2	Graduate degree	57.1																		
Income		Income		Income																			
Less than \$25,000	62.2	Less than \$25,000	63.0	Less than \$25,000	52.2																		
from \$25,000 up to \$50,000	85.6	from \$25,000 up to \$50,000	86.3	from \$25,000 up to \$50,000	36.6																		
from \$50,000 up to \$75,000	93.4	from \$50,000 up to \$75,000	91.8	from \$50,000 up to \$75,000	44.2																		
from \$75,000 to \$100,000	95.2	from \$75,000 to \$100,000	87.5	from \$75,000 up to \$100,000	59.5																		
more than \$100,000	95.2	more than \$100,000	100.0	more than \$100,000	80.0																		